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Two Years' (Major) Operative Gynæcology in the Rotunda Hospital, Dublin: A Record of Personal Experience.

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A BRIEF review of work accomplished in any special hospital is seldom devoid of interest, and for this reason I desire to give a short résumé of our work in the gynæcological department of the Rotunda Hospital for the two years ending November, 1905, during which time I have held the Mastership.

The total number of major operations performed in this period amounts to 227; 15 of these were performed in my absence by my assistants and include a successful Cæsarean section; as however I had no personal responsibility for these, they will not at present be considered.

The 211 cases that remain are made up as follows:—36 ovarian cystotomies (29 by the abdominal route and 7 by the vaginal); 30 operations for uterine myomata; 14 operations on pyosalpinx; 32 ventro-fixations; 18 vaginal fixations; 2 anterior colpotomies (undertaken for conditions not specified in this list); 4 removals of parovarian cysts; 8 hysterectomies for uterine cancer; 11 salpingotomies; 15 operations for tubal pregnancy; 3 ovarian resections; 9 operations for ventral hernia; 7 radical operations for procidentia; 1 operation for tubercular peritonitis; 2 hysterectomies for painfully retroverted uteri not amenable to other treatment; 2 removals of retro-peritoneal fibro-sarcomata; 1 operation for inversion of the uterus with prolapse; 1 for ovarian fibroid; 3 ovariotomies for dermoids; 7 abdominal myomectomies; 4 Cæsarean sections; and 1 enterostomy for congenital malformation of the large intestine.

It may be gathered from the above list that my definition of a major operation (as it affects the gynæcological specialist) is one in which the peritoneal cavity has been opened either through the vagina or through the abdominal wall, or else one in which a submucous myoma is extracted by *morcellement.*

The number of deaths in this list was eight; of these, three occurred after hysterectomies undertaken for cancer, two after abdominal and one after vaginal hysterectomy. In the last of these cases death resulted from hypostatic pneumonia three weeks after the operation; the woman was old and enormously stout, weighing twenty-two stones, and was so helpless that it was impossible to keep her from rolling over on her back. In another, death occurred on the third day after the radical abdominal operation suggested, and practised with so much success, by Mackenrodt. To my mind this is the most extensive operation performed by the present-day surgeon, and the transverse incision which is one of its essential features, extending almost from the anterior superior spine of one side to that of the other, impairs the integrity of the abdominal walls and increases shock to a degree incommensurate with its supposed advantages, viz.—a better view and a more extended field of operation.

Wertheim's brilliant results presented at the Leicester meeting of the British Medical Association encouraged me to attempt his operation. The patient died of sepsis on the second day, the origin of the infection not being far to seek. The cancer had converted the uterus into a mere shell and had involved the bladder to an extent not even guessed at before the operation. Whilst manipulating the uterus my gloved forefinger passed through its walls in a most unexpected manner, and shortly after this calamity, the bladder also was burst into while peeling it from the uterus. These untoward accidents could hardly have had other than a septic ending. Our pathologist, Dr. Rowlette, by whom the autopsy was performed, informed me that a considerable amount of malignant disease had not been removed, and that this was particularly apparent in the bladder wall.

I do not feel that the eminent author of this operation has succeeded in establishing it as a permanent one. Neither in respect of its simplicity in performance, nor its extensiveness can it be considered anything but a stepping stone to what we look forward to as the classical operation of the future.

It will be observed that hysterectomies performed for the removal of uterine cancer have been comparatively few and the results most disappointing. Operations were only undertaken in about fifty per cent. of the cases seen by me, and one woman is still alive in whom

eighteen months ago I considered that the disease had advanced too far to justify operative interference. In another of my cancer patients the bladder was extensively involved and was opened during the performance of a vaginal hysterectomy; a permanent fistula remained, and the patient died six months later from recurrence of the disease. Recovery was uneventful in all the other hysterectomies for cancer, and these patients, together with the patient from whom an ovarian carcinoma was removed, are up to the present, I believe, free from disease.

One patient suffering from myomatous uterus died of sepsis, the result of a supra-vaginal operation; this case will be again referred to. Another arrived at the hospital in a dreadfully exhausted and septic condition, suffering from a large putrefying sub-mucous myoma. She died under the anæsthetic, just as I had completed the removal of the sloughing mass by *morcellement*. A patient was lost through the bursting of the sac of a pyosalpinx with consequent escape of septic matter into the abdomen during operation—by abdominal section. A very deplorable death resulted from an erroneous estimate of the depth in which a sub-mucous myoma was imbedded in the uterine wall; at the autopsy it was found that a hole existed in the uterus from which the myoma had been excavated. The last death should not fairly be considered an operative fatality; the wretched woman was admitted to our maternity hospital in labour, her vulva surrounded with horribly foul-smelling venereal sores. She was immediately placed in an isolation ward, and she delivered herself by natural efforts and without interference of any kind. Within twenty-four hours the most virulent form of sepsis had developed with frequent and repeated rigors, temperature 104·4°, pulse 150. It was so obviously a case of inevitable death that I decided to give her the faint chance of an endeavour to stay the septic absorption by ligaturing the pelvic veins. On opening the abdomen the tubes and uterus were found bathed in pus on their outer aspect and it became apparent that these structures should be removed. This was rapidly done, and the last stitch had been fastened in the abdomen when the patient's respirations became shallow and death followed in a few minutes.

It will be observed that the two patients whose deaths are recorded as having occurred whilst under anæsthesia were both in a profoundly septic state, and they impress on us the special danger of anæsthesia in such cases.

The two retro-peritoneal lipo-fibro-sarcomata were enormous growths. In the first I removed a portion of the tumour as large as an Association football, but was unable to pursue the operation

further. The patient for some time was much relieved, but died 3 months later from recurrence without experiencing any pain. The second tumour I enucleated in its entirety; in doing so I tore the capsule of the right kidney, as it had been displaced by the growing tumour to the left hypochondrium; the renal structure was also torn. In spite of this the patient made an uneventful and apyretic recovery and she is at present in sound health.

Of our thirty-two ventrofixations only thirteen were performed on patients who did not suffer from adhesions or whose displacements were not complicated with tubal or ovarian diseases; many of them were also sterile.

Exactly how far a gynæcologist should venture in the operative treatment of sterility has up to the present received no adequate expression of opinion. To conclude that all that can be done has been done for a woman when her uterus has been curetted and her cervix split reflects but slight credit on our art, nor is there much gained if, in addition, the uterus is replaced and kept in position by a pessary or by the shortening of the round ligaments (Alexander's operation).

In these cases it seems to me that ventro-fixation is the operation of election; the incision necessary for its performance enables one directly to inspect the tubes and ovaries. It is astonishing how often these structures are diseased without any indication of the fact being furnished by bi-manual examination, and my invariable custom has been to make a systematic attempt in every instance to improve the diseased condition. Adherent and twisted tubes are loosened, the fimbriated extremity is opened if possible, and a fine probe is passed through its lumen to cause the passage to become patent. At times it is necessary to form a new os in the tube and either to hem round the raw edge in an endeavour to prevent its subsequent closure, or to adopt a plan which I prefer, namely, to stitch the ovary into the mouth of the tube and so ensure the latter remaining open. I have been told that such an operation would lead to menstrual pain, but personally I have never had any reason to believe that this is so.

It is impossible to say definitely how far these operations succeed in effecting a cure; of a certainty pregnancy could not have taken place in many of the cases in which I considered them justifiable, and the direct inspection of the appendages seems an advance in the right direction.

The round ligaments are occasionally shortened, particularly in the case of young married women who suffer from replaceable retro-deviations. It is a neat and scientific procedure, and one that can be

almost absolutely depended upon to accomplish its object, namely, the keeping the uterus in its normal position. In the light of my present experience, however, I cannot but believe that a pathological condition of tubes and ovaries is the commonest factor that makes for sterility. The apprehension of danger from childbirth following on ventro-fixation appears to have little foundation in fact, and I personally have never observed the least complication to ensue.

In performing vaginal fixations I have always employed the modern modification adopted by both Mackenrodt and Dührssen, namely, the closure of the vesico-uterine fold of peritoneum before the uterus is finally fastened by its fixation suture. Neither in ease of performance nor certainty of success does this compare with ventro-fixation, and the limitation of the field of vision makes it greatly inferior to the latter procedure in respect to the thorough exploration of the tubes and ovaries. The indications for its performance are with us, nevertheless, precise. It is adopted in the case of a parous woman with retrodisplacement complicated by rupture of the perineum and perhaps of the cervix, in whom an operation is undertaken for repair of these lesions.

We advise almost all patients who suffer in any way as the result of myoma formation to submit to operation. An exception to this rule is made in the instance of young unmarried or recently married women where such operation would involve the loss of the uterus. The small sub-peritoneal tumours are removed by vaginal myomectomy, if of larger size than a hen's egg by abdominal myomectomy. In 24 cases the uterus had to be sacrificed, and in these, with very few exceptions, we preferred sub-total to pan-hysterectomy.

To revert to the fatal case of operation for myoma, a case in which the supra-vaginal method was adopted, septic infection arose as the result of an unfortunate accident for which I am much to blame. The operation took place some two months after the date of my appointment to the hospital, at a time when experience was somewhat lacking as to the limitations of rubber gloves. Our hands had been severely burned by the prolonged action of antiseptics within the gloves. In this instance I discarded the use of antiseptics entirely, and during the progress of the operation, my assistant, while fastening a clamp, caught my forefinger and tore the glove badly; a cursory glance did not reveal this fact, and it was not until a considerable time had elapsed that I became aware that my forefinger protruded through it. From the time of this calamity dates our present method of hand disinfection.

Two of my other operative fatalities had occurred prior to this one, and indeed within three weeks of my taking over the charge of the hospital. The peculiar circumstances of the position render it necessary for a new Master to work at first amongst unaccustomed surroundings, with nurses, sisters and assistants to whom his methods are entirely strange, and this placed me at such a great disadvantage that at times I am disposed to think that one, if not more of these patients might have been saved had the operation been conducted under present conditions.

Our ventral hernias furnished two cases of extreme interest. In none of them was the original operation performed by me, nor has this accident happened so far as I am aware to any of my patients. One woman on whom an operation had been performed in Egypt some years before, on the day of admission to our hospital burst her abdominal wall during a fit of coughing. The intestines lay on her abdomen and on her pubic hair for nearly an hour before relief could be obtained, and notwithstanding this her recovery was uneventful. The other case was that of an infant eighteen hours old in whom the intestines protruded as a large mass from the umbilicus, covered only by a thin capsule of a greatly stretched out umbilical cord. This capsule was very firmly attached to the intestines, and during the process of separation the latter were badly torn. Fine silk sutures repaired the laceration, and the infant's subsequent progress towards health was all that could be desired.

We failed to find the aponeurotic covering of the recti muscles in one very fat and alcoholic patient, and in her case a relapse has taken place.

Amongst the abdominal operations there were five cases which showed some suppuration in the wound. In two the staphylococcus albus was found, in one, the pneumococcus, in a fourth bacterium coli commune, whilst the germ in the fifth was not ascertained. In three of these the suppuration was slight and entirely superficial. In a fourth healing followed in a few days on the pulling out of a small piece of the continuous silk suture that united the edges of the fascia. In the fifth case a small sinus remained six weeks after operation, and the patient, refusing further treatment, left the hospital.

This infection also had involved the fascial suture, and could have been perfectly easily cured by a procedure similar to that adopted in the other case.

Only four of our six Cæsarean sections (all of them successful) are included in this list. When due care is taken in selecting cases suitable for Cæsarean section this is amongst the easiest and safest of

abdominal operations. In every instance the uterus was stitched by interrupted sutures of fine silk, and the abdominal wall closed in three layers by the same material. We never failed to notice the thickening process that continuously went on, and could be observed in the uterine incision during the time it was being sutured. This retraction force has no connection with uterine contractions and proceeds when the muscle is in a flabbily relaxed state. I have had occasion recently to perform Cæsarean section for the second time on one of my patients, and was interested to note that within an interval of eighteen months all traces of silk sutures had disappeared not only from the abdominal wall but from the uterus; the scar in the latter formed no adhesions, and indeed was discernible with difficulty. It was felt, however, as a slightly less thickened portion of the uterus when it was grasped by one finger placed inside and the other outside that organ.

Having now dealt briefly with some of the more interesting cases, I shall pass to a consideration of our methods:—

The hospital contains two small, well lighted theatres, suitable for the carrying out of the aseptic principles of surgery. In one, all minor operations are performed, and in addition to these nearly all the vaginal colpotomy operations. For the latter the vulva is shaved and thoroughly washed by an assistant while the patient is under the anæsthetic.

Gamgee wool is held in a forceps, soaked in soap solution, and inserted into the vagina, and the latter is thoroughly scrubbed out, the action of the soap being aided by a douche; when this process is completed the vagina is well plugged with lumps of cotton wool soaked in biniodide of mercury solution. The patient's legs are placed in sterilized bags, and these are connected together by an abdominal apron, which enables the operator at any time to make a bimanual examination without touching the skin of the abdomen.

A piece of waterproof sheeting specially prepared to withstand repeated boilings is stitched to the perineum just above the anus, and serves admirably to protect the field of operation from contamination. Gloves have been worn almost without exception in all vaginal work for the past twelve months.

Theatre No. 2, as originally designed by Sir William Smyly, consisted of an exceedingly small room that might almost have been called a box. It was lighted by a northern light, and was entered from another room where all the disinfecting processes took place, and where, from a large elevated platform, the students viewed the operation through a plate glass screen. This screen, cemented into

the lateral walls and reaching from floor to ceiling completely divided the rooms.

The extended use in surgery of the Trendelenburg position necessitated the turning of the patient's abdomen to the light and away from view of the students. This resulted in much dissatisfaction, and continuous complaints reached me that it was impossible for lookers on to follow the various steps of operations. For this amongst other reasons, and acting on the suggestion of Sir William Smyly, I determined on its alteration. The screen has been pushed back so as to provide ample room in the theatre proper, and students now enter by a door other than that placed in the glass screen. They stand on raised platforms with their backs to the windows, and they obtain an exceptionally good view of the operation. Doors are bolted at the beginning of the operation, and late comers can as heretofore look through the screen.

One basin with hot and cold water connections worked by elbow levers is fixed in the theatre for the purposes of hand washing during operation; its waste-pipe passes through the wall of the theatre and opens into the air unconnected with any trap or sewer pipe.

All the sterilizing apparatus is separated from the theatre proper by the screen, and in this screen is placed a small lift-up window to enable disinfected instruments to be handed into the theatre during an operation. Our city water supply is very pure, and we have not seen any necessity for its special sterilization before employing it for hand washing. It is our invariable custom to fill the abdomen with saline solution at the termination of all abdominal sections, and to use a similar solution in which to soak "wipes" before they are placed within the abdomen. For these solutions the tap water is submitted to a special process of sterilization which deserves a passing notice. The cold water is passed through a Pasteur's filter and is discharged into a large sealed tank, from which a copper pipe, passing through the screen, conveys the filtered water to the theatre; a second pipe running parallel to this one carries water from a copper receptacle beneath which a gas burner is placed, and the hot and cold taps for sterilized water lying side by side enable a nurse to obtain very readily water of any required temperature. To filter the hot water by a Pasteur's apparatus would be an easy matter, but this has not seemed necessary.

Since January, 1904, we have worn gloves without intermission for all abdominal sections; their employment seems in no way to hamper, whilst the satisfaction of feeling that one cannot infect one's patient adds immensely to the confidence of the operator.

In order to avoid the injurious influence of mercurial antiseptics on the skin when imprisoned within gloves we have adopted the following plan with excellent results.

After the usual thorough scrubbing with soap, nail brush and hot water, the hands are soaked in one in 1,000 solution of biniodide of mercury dissolved in 70 per cent. methylated spirit with 30 per cent. water. To remove this antiseptic from the skin the hands are well rinsed out in pure methylated spirit; some of this is also poured into the gloves after they have been emptied of the hot water in which they have been boiled. The methylated spirit acts as an efficient lubricant and permits the glove to be readily slipped on. The epithelium by its means is kept hard and dry, and is neither roughened nor burned by the prolonged action of alcohol. We have proved by numerous bacteriological examinations that the hands remain sterile even at the end of a two hours' operation; this being so, a needle puncture or even a slightly larger hole made in the glove is a matter which no longer excites uneasiness, for we know that any fluid which may possibly escape from these will be sterile.

When time permits, the skin of the abdomen undergoes the usual process of preparation, and has a biniodide spirit pad of the solution above named placed over the site of operation.

We do not scrub with soap and water before the operation and while the patient is under the anæsthetic, for we believe that violent scrubbing with a nail brush at this time mechanically injures and devitalizes the living epithelium, leaving it in a condition less likely to withstand the attacks of germs.

We rub the abdomen over with ether and then with biniodide solution, and finally paint the skin with tincture of iodine, or better still with saturated solution of picric acid in spirit. All these procedures have for their object the hardening of the epithelium and disinfection of its surface layer. It is of little consequence to us what germs may lurk within the deeper recesses of the skin if we can prevent them sweating to the surface, and this object can be attained with more or less success by following out the above procedure.

A Köcher's sheet is stitched to the abdomen to prevent its slipping from its proper position throughout the operation.

Repeated exposure of culture plates placed in different parts of the theatre have demonstrated the atmosphere singularly free from pathogenic organisms. They occurred in greatest number in the neighbourhood of the patient's chest and obviously resulted from air-currents caused by the patient's, the anæsthetist's, and the operator's breath, together with that of his assistants. To mitigate this evil we

now place a screen on the chest of the patient to shut out the field of operation from her breath, as well as from that of the anæsthetist, whilst mouth bags are worn by operator and assistant.

Culture colonies increase in number the nearer the floor is approached, and the latter is therefore kept in a constantly damp condition to fix the dust and microbes that may fall on it.

Students are provided with white coats during their stay in the theatre, but we have not made them wear mouth bags. It is evident therefore that in their breathing, coughing, and sneezing, and occasional talking, septic air currents to a considerable degree must arise. This being so, it has always appeared to me rational to dilute these germs by opening the theatre window. I know that such a view will obtain no general acceptance, but I personally have never been able to trace the remotest ill consequence to the course, and it certainly conduces to the comfort of those in the theatre.

If septic matter escape into the pelvis during the course of an operation, our operating table is immediately screwed into a position the reverse of the Trendelenburg position, with shoulders raised and pelvis lowered, and an assistant holds back the intestines while the infected area is douched out with copious quantities of saline solution. This position is very readily obtained in our excellent operating table of German manufacture. It is aseptic in design, can be elevated or lowered with the patient on it, by a few turns of a handle, while another handle works the Trendelenburg and its reverse position in an absolutely perfect manner. The price of the table is, I believe, £13, and its efficiency is not excelled by that of any other of which I have had experience.

If there be reason to believe that septic matter has escaped into the pelvis we drain either with Keith's tube through the abdomen or with iodoform gauze through the vagina.

The head of the patient's bed is also kept raised on blocks for several days to confine infection to the pelvic region, as far as possible, and we think we have observed cases where this postural treatment succeeded in limiting the infected area.

At the completion of every abdominal section, the cavity is filled with saline solution before the abdomen is closed, as we believe that this lessens subsequent discomfort and thirst, provides a readier means for omentum and intestines to roll into normal position, and in the event of septic infection, dilutes the poison and brings it into direct contact with a larger phagocytic area.

The abdomen is closed in three layers; peritoneum with No. 2 and aponeurosis with No. 4 silk, both boiled in corrosive sublimate

solution. The skin wound is brought together with a sub-cuticular suture of silk-worm gut; the two extremities are passed through holes bored in a leaden plate which latter is placed on the wound along its entire length; the ends of the ligature meet in the middle of the plate and are tied together.

In the event of the lower angle of the wound requiring drainage the leaden plate is an invaluable means of keeping the upper portion of the wound dry, and of preventing its contamination by sopping-wet dressings.

My main reason for entering into such minute details of theatre management is that I may succeed in eliciting some expression of opinion on what may be deemed the practical requirements of aseptic surgery, as we at present understand the term. I cannot attribute any of my failures to faults in theatre construction, and this too I feel confident will be the verdict of every impartial reader of this paper. This being so, it does not seem too much to say that our theatre, simple in construction, and inexpensive in its fittings, with its well tiled floor, and its smooth cemented walls painted with Rippiline enamel, satisfies the requirements of our present aseptic knowledge.

If this conclusion be granted, and it should not be set aside on mere theoretical grounds, a crushing argument is furnished against the wasteful expenditure in theatre construction and fittings so fashionable in the present day. Tens of thousands of pounds subscribed by the charitable public have been lavished in an effort to reach perfection. Architectural extravagance has been permitted a loose rein, and allowed to run riot, with results which have converted the simple workshop of the surgeon into a showroom which might well serve as a dazzling advertisement for a quack electrical specialist. Fortunate will it be for us if future generations do not find just cause for censure in this extravagance.

I cannot conclude this paper without recording my sense of gratitude for the valuable help afforded me by my assistants, and more particularly by my nursing sister, Sister McIlroy, who has been associated with me from the first and has devoted herself to the work with a whole-hearted enthusiasm.

A Case of Fibro-myoma of the Uterus undergoing Sarcomatous Change.*

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G.F., AGED 56, was admitted into St. Bartholomew's Hospital under the care of Dr. Herringham, on June 27th, 1905, suffering from abdominal pain and diarrhœa.

The patient had been a widow for nineteen years. She had never been pregnant. Very little is known of her past history except that six years previously she had attended the hospital as an out-patient, on account of an abdominal tumour and of excessive losses at her menstrual periods. At that time she was seen by Dr. Champneys, who diagnosed uterine fibroids, but advised that, as she was not a fit subject, no operation should be performed.

At the beginning of May, 1905, the patient commenced to suffer from abdominal pain, cough and night-sweats; on June 25th from persistent headache, and from diarrhæa, passing 3 or 4 loose motions a day. At the time she presented herself at the hospital her temperature was 101°F. The symptoms were suggestive of enteric fever, and she was sent into the ward with this provisional diagnosis.

On admission, her condition was thus described:—

"A stout, heavily-built woman, with no marked anæmia. Temperature 101°F. Pulse 100, of fair volume and tension. Respirations 28 per minute. Tongue coated in the centre, red at the edges. Nothing abnormal is discovered in heart or lungs.

"*Per hypogastrium*, a large firm tumour rises out of the pelvis, and reaches to two inches above the umbilicus; it lies more on the right than on the left side of the abdomen. The spleen cannot be felt.

* Read at a Meeting of the Obstetrical Society of London, held on January 3rd, 1906. For the discussion see under "Reports of Societies," in this number of the Journal.

Blood-count—no diminution of red-blood corpuscles, leucocytes 11,000. The blood was tested for Widal's reaction, a dilution of 1 in 40 was used; two or three small clumps were observed but the reaction was not sufficient to justify a positive diagnosis."

On July 4th the test was re-applied, using a dilution of 1 in 20; there was agglutination. This was repeated on July 6th, again with a negative result.

After admission the diarrhœa ceased, the temperature ran an irregular course, varying between 99° and 101°; the woman was obviously ill and there was difficulty of respiration in the recumbent posture, although there were no physical signs to indicate any pathological condition in the lungs.

On July 17th, she was seen by Dr. Champneys, who made the following note:—

"*Per hypogastrium.* A hard tumour reaches $2\frac{1}{2}$ inches above the navel; the abdomen is not tender.

"*Per vaginam.* The vagina admits one finger only, the cervix is small and high up.

"*Bimanually.* The abdominal mass moves with the cervix.

"*Per rectum.* Nothing further is discovered.

"The patient has a large fibroid which is freely moveable. The pelvic tissues feel normal; there is no reason to connect the temperature with any pelvic condition."

Between July 11th and August 8th the patient's general condition became steadily worse. The temperature remained persistently above the normal, and on several occasions rigors occurred, with a further rise of temperature to 103°. There were sometimes attacks of abdominal pain, and the patient complained also of pain in the chest. On July 11th peptone was detected in the urine. A note was made: "The presence of peptonuria suggests that some necrosis is going on, possibly in the fibroid." On August 2nd cultures were taken from the blood with a negative result. From August 15th to 17th hæmorrhage occurred from the vagina; a considerable quantity of blood was lost, and clots were passed. A day or two after the cessation of this hæmorrhage the patient was seen by Dr. Griffith. In view of the facts that she was getting gradually worse, and that the uterine tumour was the only pathological lesion that could be discovered, he urged that an exploratory operation should be undertaken. The patient however refused her consent.

By August 22nd the general condition was much worse, the pulse was now 120 and the respirations were 40 per minute; injections of

10 c.c. of anti-streptococcus serum were administered twice daily. On this date the following note was made:—

"Over the right lung in front there is loss of resonance and the breath sounds are weak. Behind, there is impairment of percussion note at the right apex, the breath sounds are weak and the vocal resonance increased."

It was now suspected that the uterine tumour was of a malignant nature, and that secondary deposits were present in the lung.

From August 24th to 29th there was hæmorrhage from the vagina, large clots were passed each day.

The patient then requested that the operation might be performed, and on September 1st she was transferred to Martha Ward, under the care of Dr. Griffith.

Her general condition was, however, now such as to contra-indicate operation, and she gradually sank and died on September 10th.

Post mortem examination. The condition of the uterus will be described immediately. The only other part of the body in which growths were found was the thorax. The following note is taken from the *post mortem* book:—

"On opening the thorax a large mass of soft growth was seen occupying the region of the upper lobe of the right lung. It was loosely attached to lung and pleura and came away easily in the hand; it was the size of a large orange. On section it consisted of soft, brownish-red material, intersected by honeycomb-like structures, similar to the large mass in the uterus. Both lungs contained several smaller masses, dark in colour, some of which were easily enucleated; on section they also reproduced closely the appearances of the uterine tumour."

The heart, liver and kidneys all showed evidence of fatty degeneration. No other lesions were found.

Description of the Specimen. The specimen consists of the left half of a uterus. The organ is enlarged, the part preserved measuring $8\frac{1}{2}$ inches in length, $4\frac{1}{2}$ inches antero-posteriorly and $2\frac{3}{4}$ inches from side to side. The external surface, smooth and covered by peritoneum, presents a number of small bosses due to the presence of sub-peritoneal fibro-myomata.

At the lower part of the specimen is the *cervix uteri*, its canal is dilated, its lips are patulous, and the supra-vaginal portion is stretched and elongated to a length of $2\frac{1}{4}$ inches; only faint traces of the *arbor vitæ* are visible, but portions of the *mucosa* from the upper part of this canal have been submitted to microscopical examination and exhibit the characters of cervical not corporeal endometrium. At a

PLATE I.

SAGITTAL SECTION THROUGH UTERUS AND GROWTH.

A.—Cervix uteri.
B.—Uterine cavity containing fibroid polypus.
C.—Large interstitial growth in anterior wall of uterus, in part a fibromyoma, in part a sarcoma.

spot on the external surface corresponding to the *fundus uteri* is the point of attachment of the Fallopian tube and of the round and ovarian ligaments. The round ligament is hypertrophied and elongated. The fimbriated end of the tube is closed and is closely adherent to the cystic ovary; a small opening has been made into the distal end of the tube and a glass rod passed along its lumen towards the uterus.

On section the greater part of the specimen is composed of a group of tumours growing in the anterior wall of the uterus. The uterine cavity lies at the lower part of the specimen, it is dilated and occupied by a fibroid polypus attached by a slender pedicle of mucous membrane to the anterior wall. The axis of the uterine cavity is almost at right angles to the cervical canal, and is directed backwards; the cavity is enlarged, measuring four and a half inches in length.

The walls of the uterus are hypertrophied; the posterior measures $\frac{5}{8}$ths of an inch in thickness; the anterior contains interstitial tumours. One of these tumours occupies the highest part of the wall; it is the size of a golf ball, is encapsuled, and is composed of dense white tissue. Microscopical sections show that it is a fibro-myoma. A second growth, smaller, but possessing similar characters, lies lower down in the wall a short distance above the uterine cavity. The third tumour, much the largest of the three, presents very remarkable characters. It measures $5\frac{1}{2}$ inches in length, $4\frac{1}{2}$ inches antero-posteriorly; it is interstitial, surrounded everywhere by the fibro-muscular tissue which constitute the anterior wall of the uterus, and is composed of two varieties of growth:—

(*a*) Dense, white, fibrous-looking tissue, the continuity of which has become broken by the presence of

(*b*) Masses of friable material of a deep red or brown colour.

This latter material is situated chiefly in the posterior part of the tumour, and in its general appearance closely resembles blood-clot. Microscopic sections show that the dense white part of the tumour is a fibro-myoma, whilst the friable red portion is a sarcoma.

The fibroid polypus which occupies the uterine cavity can be easily displaced, it is then found that the cavity is everywhere lined by a smooth *mucosa* entirely free from new growth.

It is important to note once again that the whole mass (fibro-myoma and sarcoma) is encapsuled, and whilst the sarcomatous elements have extensively invaded the fibro-myoma, as far as can be ascertained without mutilating the specimen, the uterine wall is but little affected.

Description of Microscopical Appearances.

(1) *Section from the firm white part of the tumour.* The section presents the appearances commonly seen in a degenerate fibro-myoma; it is composed of interlacing bands of unstriped muscle and of fibrous tissue. In some parts the nuclei still possess their usual staining reactions, in others they stain only feebly or not at all. The cell-fibres have lost their individual outlines and are represented by masses of almost homogeneous substance staining faintly with eosin. In some places are vacuolated areas and small cystic spaces formed by myxomatous degeneration of tissues, in other places are areas of inflammation with small-celled infiltration of the tissues. Only a few thin-walled vessels are seen scattered through the section. At one spot the fibro-myomatous tissues are invaded by an elongated strand of sarcoma cells. The characters of these cells are precisely similar to those to be described in the next section.

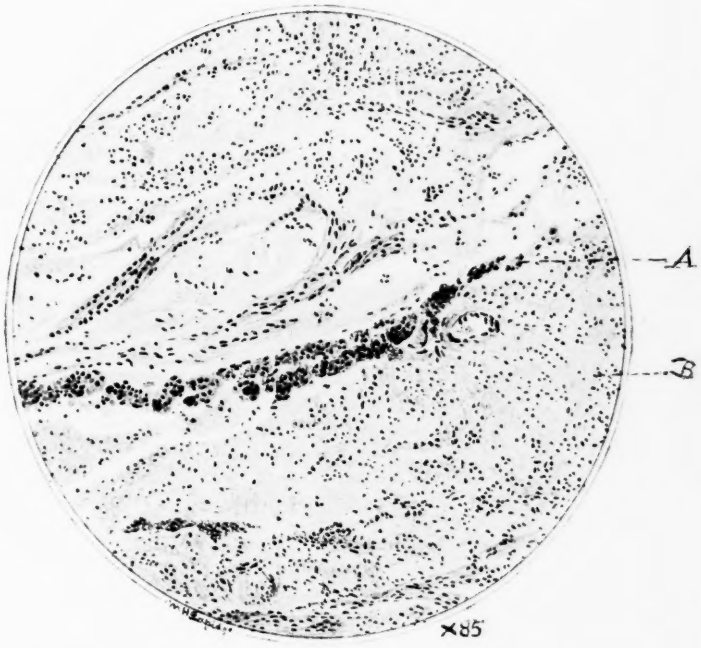
(2) *Section from the red, friable part of the tumour.* The friable portions of the tumour are composed of a mass of cells of whose malignancy there can be no question. They are of very different sizes and shapes, most of them are round, some are elongated and spindle-shaped, some are very large and contain as many as six or eight nuclei; these may be designated "giant cells." In nearly all the cells, the nuclei are large, active, and deeply-staining, sometimes they occupy almost the whole of the cell. The cells are separated from one another by a homogeneous inter-cellular stroma which stains clearly with eosin. At the periphery of the malignant portion are elongated cells with long, rod-shaped nuclei, these cells lie near to the muscle cells of the fibro-myoma, and both can be seen in the same field of the microscope. They are obviously malignant, but in their shape and form resemble muscle cells;* in most parts of the section, however, no such resemblance can be seen. No well formed blood-vessels are seen, but there are many vascular channels traversing the section.

(3) *Sections from the secondary growths in the lungs.* The cells in these masses are all of the round and spindle-shaped varieties. There are no cells visible which resemble muscle-cells in either their form or arrangement.

The study of the relation between sarcomata and fibro-myomata of the uterus is one which is beset with difficulties, and in which we must proceed with the greatest caution.

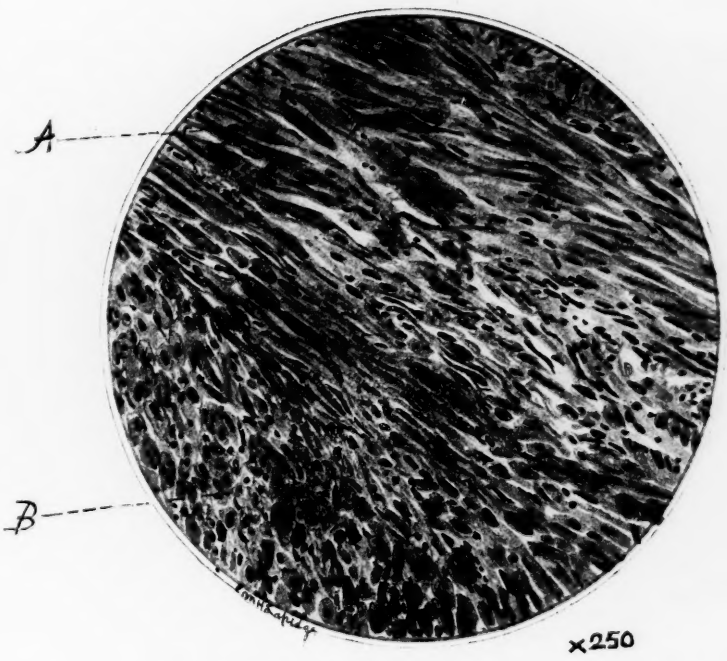
* It is important to pay attention to this point, for, as we shall see later, many pathologists hold that sarcoma of the uterus commonly arises from muscle-cells.

PLATE II.



Section showing tissues of the fibro-myoma invaded by a strand of sarcoma cells. A, Sarcoma cells. B, Fibro-myoma.

PLATE III.



Section showing muscle bundles and sarcoma cells in the same field of the microscope. A, Muscle bundles. B, Sarcoma cells.

The subject is rendered the more complicated by the use of the term "malignant degeneration" as applied to fibro-myomata. When an innocent tumour develops malignant characters we ought not to speak of the process as a degeneration; degeneration means a loss of vitality leading often through slow or more rapid gradations to ultimate death. Malignancy, on the contrary, implies an activity and vitality so great that along the track of the malignant invading cells the normal tissues are disintegrated and destroyed.

Further, different writers use this term, inappropriate as it is, to indicate very different conditions:—

(1) There may be present in the same uterus two entirely separate and distinct tumours, the one a sarcoma the other a fibro-myoma.

(2) A sarcoma may originate in some more or less distant part of the uterine wall and subsequently invade a fibro-myoma.

(3) A sarcoma may arise *de novo* in a pre-existing fibro-myoma: a new growth within a new growth.

(4) Possibly the cells of which the existing fibro-myoma is constituted may assume malignant characters.

All four of these conditions have been described under the name of "malignant degeneration."

Many authors have positively stated or tacitly assumed that all sarcomata of the uterine parenchyma have their origin in fibro-myomata. This doctrine, at one time widely accepted, has left its mark upon later writings, and even in recent papers there is often no clear distinction made between primary sarcomata, and fibro-myomata undergoing a malignant change.

Is the association of sarcoma and fibro-myoma a common one? For the answer to this question we must turn to published statistics.

Dr. Cullingworth, in his admirably reported series of 100 fibro-myomata, met with only one sarcoma.

Haultain, in a series of 400 cases, met with one sarcoma. Simpson, in 300 cases, met with none; MacDonald, in 280 cases, with three. On the other hand, Mrs. Scharlieb, in 100 consecutive cases, met with 6 sarcomata, whilst Baker and Graves, out of a series of 33 cases, report 3 sarcomata. Here, then, in this town of London, the association appears to be six times as common in the practice of Mrs. Scharlieb, as it is in that of Dr. Cullingworth. What is the explanation? The diagnosis of sarcoma depends entirely upon the interpretation of certain histological appearances, one pathologist will accept these appearances as evidence of malignancy, another will

refuse to do so. This fact is brought home to us very forcibly, if we review the cases of reputed sarcoma of the uterus brought before the Obstetrical Society of London during the last few years.

In 1902 Dr. Munro Kerr showed a small fibroid which, to quote his own words, exhibited "Groups of cells throughout the tumour which are not cross sections of muscle fibres. These are considered evidence of a sarcomatous change having occurred in this tumour."

The Pathology Committee reported:—"We can find no evidence of sarcomatous change in the tumour."

In 1901 Dr. Galabin showed a microscopic section of a tumour removed from an unmarried lady of 28. After removal the tumour was regarded as a fibro-myoma; a small piece was preserved for examination, the rest was thrown away. The Clinical Research Association reported it to be a sarcoma. Dr. Spencer differed from this view and regarded the section as part of a fibro-myoma. Unfortunately the specimen was not referred to a Committee.

In 1899 Dr. Amand Routh exhibited before the Society what he described as a myxo-sarcoma of the uterus. The Pathology Committee reported:—

"We are of opinion that this specimen is a fibro-myoma, showing extensive round-celled infiltration (inflammatory) with general thrombosis of vessels and mucoid degeneration in parts."

These instances might be multiplied, but we have said enough to show how extremely difficult it is to arrive at any trustworthy conclusion regarding the frequency of the association. Mr. Doran has often pleaded the importance of after-histories—never with greater justice than in the case of these reputed sarcomata of the uterus.

The changes which may occur in a fibro-myoma as the result of œdema, of degeneration, and of inflammation, lead to marked alterations in both the muscle fibres and the connective-tissue cells, alterations which are often interpreted as evidences of malignancy.

In the case of the specimen before us there can be no question that we are dealing with a true sarcoma. Its constituent cells have all the characters which we associate with malignancy; the growth has unquestionably invaded surrounding tissues; metastatic deposits of a similar structure are found in distant organs, and, finally, the disease has killed the patient.

To determine what is the relation of the sarcoma to the fibro-myoma is a matter of grave difficulty, and the discussion of this question will necessitate a brief review of certain other cases.

We have already drawn attention to the fact that sarcoma and

fibro-myoma may co-exist in the same uterus under four different conditions. Let us examine each of these a little more closely.

(1) The two growths may exist as separate and distinct tumours. For the proof of this statement we need only refer to a specimen exhibited before the Obstetrical Society on May 7th, 1902, by Dr. Tate, and figured on Plate IV*a* of the Society's *Transactions* for that year. The specimen was referred to a Pathology Committee, of which one of us was a member. The report was as follows:

"We are of opinion that this specimen is a primary sarcoma of the body of the uterus, and that it is associated with a fibro-myoma. There is no evidence that the sarcoma represents a malignant degeneration of a fibro-myoma. There is a distinct line of demarcation between the two tumours. The microscopical appearances show that the malignant tumour is a mixed, round and spindle-celled, sarcoma, whilst the innocent tumour is undoubtedly a fibro-myoma. There is no evidence of invasion of the fibro-myoma by the sarcomatous growth."

It is quite clear that the specimen before us cannot be referred to this class.

(2) A sarcoma may originate in a more or less distant part of the uterus, and subsequently invade a pre-existing fibro-myoma. For the proof of this statement we select a case published by Whitridge Williams in the *American Journal of Obstetrics*, vol. xxix., p. 753. Similar cases have been published by Raymond (*Progres Médical*, vol. ix., p. 741) and Gottschalk (*Central. für Gynäkol.*, vol. xi., p. 242). Williams's description is as follows:—

"At the fundus, the uterine wall was one centimeter thick, its lower portion being of various thickness, for a nodular tumour four centimeters in diameter occupied its anterior wall and extended down to the *os internum*. The surface of the tumour projected into the uterine cavity and presented a jagged, irregular, ulcerated appearance. The rest of the uterine cavity showed no trace of its normal mucous membrane, but presented an irregular villous necrotic surface which was composed of a soft tissue rich in vessels, and which apparently extended down into the *muscularis*."

Microscopic sections from this irregular villous growth showed it to be a spindle and round-celled sarcoma containing some giant cells.

"Sections from various parts of the specimen clearly show that the sarcomatous new growth is limited to the inner surface of the uterus and extends only a short distance into its walls. It is probable

that it originated in the *mucosa*, but as no trace of the endometrium remains, positive proof for this mode of origin cannot be adduced. Sections through the upper part of the large myomatous nodule and the adjacent portions of the uterine wall and cavity, show clearly that the growth did not originate in the myoma, but only involved the portions of it which were adjacent to the uterine cavity, just as it did the other portions of the uterine wall."

It is a fact worthy of note that in the three similar cases of which we have found records the sarcoma appears to have had its origin in the endometrium.

Can we place the specimen before us in this group of cases? We believe not—certainly the sarcoma did not arise in the endometrium, for this structure is everywhere intact, and the examination of microscopic sections reveals no pathological change beyond some flattening and atrophy due probably to pressure. Nor can we find any evidence to justify the view that it arose in the fibro-muscular wall of the uterus; we have examined sections of the uterine wall in the immediate vicinity of the tumour, and find them free from evidence of malignant disease.

We are compelled then to place this tumour in one of the two last groups we have enumerated; and in our opinion, the present state of our knowledge of the histo-genesis of malignant tumours in general does not permit us to distinguish definitely between them.

We find no difficulty whatever in accepting the doctrine that a tumour, originally innocent in both its clinical characters and microscopic appearances, may become malignant: but whether the cells of the existing tumour assume malignant characters, or whether the malignant growth arises *de novo* in the innocent tumour and by its invasion destroys and replaces the tissues of its host, we cannot say.

A fibro-myoma is composed of two varieties of tissue, muscle cells and connective-tissue cells, and in most cases it is from one or other of these forms of tissue that the cells of the sarcomata are derived. We say "in most cases," for in a few rare instances the growths have arisen from lining cells of blood-vessels or of lymph channels. These cases of uterine endotheliomata are however, admittedly, few and far between.

Has the sarcoma arisen from muscle or from connective-tissue cells?

Many authors have described a malignant change occurring in muscle cells. To the form of tumour thus constituted the term

"leiomyoma malignum" has been applied. Clinically these tumours are distinguished by their rapid growth, by their tendency to recur after removal, and by the development of metastases of similar structure in the lungs and other viscera. On microscopic examination the cells are seen to be elongated and of many varieties. Ulesko-Stroganova, von Kehlden and Whitridge Williams, state that they have traced every stage of the transition from an apparently normal unstriped muscle-fibre on the one hand to a sarcoma spindle-cell on the other. Round cells and giant cells, often containing many nuclei, are commonly met with, and in general it is only at the periphery of the growth that the resemblance to muscle-fibres can be traced.

German and American pathologists regard the muscle cell as the commoner site of origin of the malignant growth; on the other hand the view of the members of the Obstetrical Society of London has hitherto been that sarcoma arises only from the connective-tissue cells. This is the view expressed by Dr. Horrocks, and recorded in the Society's *Transactions* for 1898, p. 178, and again in the *Transactions* for 1901, p. 226, and at neither of the meetings were his opinions controverted.

We have pointed out in our description of the microscopic appearances of this specimen, the resemblance in shape and form, at the growing edge of the tumour, between the sarcoma cells and the adjacent muscle-fibres. The cells are elongated and pointed at each end; the nuclei, enormously enlarged and in process of active division, are in some cells still rod-shaped, in others rounded, and further the cells are still grouped together in the form of bundles and strands. These appearances certainly suggest that the sarcoma may have arisen from muscle-fibres. Other cases have been described which render equally probable a connective-tissue origin, and the truth is that from either of these cells a malignant growth may arise. We see no need to introduce a new term such as "leiomyoma malignum," both the tissues are of mesoblastic origin and a malignant neoplasm of either is correctly described as a sarcoma.

We regard the specimen as an instance of sarcomatous change occurring in a fibro-myoma. Whether the sarcoma has arisen *de novo* in a pre-existing fibro-myoma, or whether the cells of the fibro-myoma have assumed malignant characters, we do not pretend to say. Further, from the microscopical appearances seen at the growing edge of the tumour, we think it quite possible that the sarcoma may have, at least in part, originated in muscle cells.

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*On a Case of Pyelonephritis of Pregnancy.

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Pyelonephritis commencing during pregnancy has not, so far as I can gather, been brought before the notice of this Society, and as I have recently been able to study such a case, I have thought it well to make it the subject of a short communication.

Whilst I was Registrar to the Hospital for Women, Soho Square, a patient with the following history was admitted under the care of Mr. Drew, to whose kindness I am indebted for permission to make use of it:—

Mrs. Y., æt. 23, was admitted to hospital on January 9th, 1904. She had been married two years, and had had two children, the latter of whom was born three weeks previous to her admission. The history she gave was that, until six weeks before her confinement, she was, so far as she knew, perfectly well. About this time she began to suffer from indefinite pains in her left loin, radiating over the abdomen and into the back. About the same time she noted that her water was thick, and that it sometimes had a disagreeable smell. She felt ill, and was more or less confined to bed. She was under medical supervision, and was evidently feverish, as she says that her temperature was regularly taken. Nothing definite was found to account for her symptoms. The confinement, which took place at full time, was perfectly straightforward.

Subsequently, the symptoms not abating, she came to hospital for advice. On admission, the patient had a temperature of 101°F., and looked very ill. Examination revealed a large, dull, immobile swelling in the left kidney region, extending back to the spinal muscles and down as far as the brim of the pelvis. Faint, deep fluctuation was detected, and pressure over the swelling caused pain. The urine was acid, had a sp. gr. of 1015, and contained a large amount of pus. Pelvic examination revealed nothing abnormal.

Mr. Drew explored retro-peritoneally, and evacuated a large amount of pus from the much distended pelvis and ureter of the left kidney. No stone or caseating matter was found. The kidney was slightly disorganised. Drainage was employed, and the patient

*Read Jan. 3rd, 1906, at a Meeting of the Obstetrical Society of London.

gradually recovered, and was discharged. Her urine was acid all through, the pus gradually disappearing. She was seen again in October, 1905, and reported that, since leaving the hospital in March, 1904, she had been perfectly well and had gained flesh. She had had another child, nine months ago, but no return of her previous trouble.

Such then is the history of the case—a woman attacked in her seventh month of pregnancy with pain in the left side and the back; thick urine was passed, and there was a general feeling of malaise. The symptoms were not relieved till the operation took place, when a pyonephrosis of the left side was evacuated and drained.

The sequence of events in this case was probably due to the fact that a pyelonephritis was set up in consequence of (*a*) some pressure on the ureter rendering the kidney and its pelvis a "point of least resistance," and (*b*) the entrance of some pyogenic organism, the pyelonephritis subsequently becoming complicated by a pyonephrosis.

It may be that originally there was a hydronephrosis, caused by pressure on the ureter, and that this hydronephrosis subsequently became infected. The history points to the first as being the more likely sequence of events. That pyelonephritis can commence during pregnancy, I mean that it may begin as a direct result of the patient being pregnant, I do not think anyone will doubt.

In order to induce this pyelonephritis we must have (1) a predisposing and (2) an exciting cause.

1. The predisposing cause is pressure exerted on the ureter in some part of its course, and consequent production of stagnation of the urine and dilatation of the parts above the point compressed. The most widely accepted view is that the ureter is nipped between the gravid uterus and the pelvic brim—a theory which has received support on account of the fact that the trouble is in a very large proportion of cases on the right side, to which side there is said to be a normal inclination of the uterus, aggravated when it becomes pregnant. Another theory recently advanced by Cathala[2] is that the constriction is brought about by the traction exerted on the ureter by the inferior uterine segment. With this latter theory I am more inclined to agree, as it seems to me to explain better—(1) those cases which commence early in pregnancy before it is possible for the uterus to exert any pressure on the ureter by nipping it against the pelvic brim; (2) those cases commencing after labour, when the uterus is supposed to sink down into the pelvis and drag on the ureter. In the *Lancet* of September 9th, 1905, a case commencing after labour is recorded by Chatelain.[31] In addition to this, as

predisposing causes, we have the congested state of the organs and the overwork, conditions common to pregnancy and favourable to the growth of organisms should they gain admittance.

2. The exciting cause is some pathogenic organism gaining entrance to the kidney by means of the blood or lymph stream. The chief offender seems to be the colon bacillus, the virulence of which is no doubt attenuated on account of the constipation so common amongst pregnant women. In the case recorded above I am sorry I cannot vouch for the organism, as no bacteriological examination was made.

The infection may be "ascending," in which case the history is altogether different, and usually the offender is the streptococcus or staphylococcus.

The recorded cases show that pyelonephritis is usually unilateral and right-sided—a point touched on before. It seems also to be more frequent in *primiparæ*. Some may object that, as the pyelonephritis of pregnancy is a rare occurrence, there must be some particular, rare combination of events to produce it. In reply to this I ask, is pyelonephritis as rare as we think? May not a good many of the cases of so-called albuminuria of pregnancy be in reality cases of pyelonephritis? This can only be answered by a systematic examination of the urine for pus in all cases where we find albuminuria. The insidious onset of such cases may often be misleading as to diagnosis. Then again, the duration may only be a matter of 10—12 days, perhaps less. Symptoms also may be intermittent, due to a temporary lessening of the pressure on the ureter. The character of the urine varies according to the stage of the illness at which the examination takes place. It is usually acid, and contains pus and epithelial débris. Bacteriological examination will reveal the presence of the offending micro-organism. It is possible that those who have had previous kidney trouble will be more liable to suffer from the pyelonephritis of pregnancy than those who have perfectly healthy kidneys, but of this point I have no definite proof.

The description of the pyelonephritis of pregnancy belongs to recent years; our knowledge of it comes very largely from French authors. The first mention of it is made by Rayer[1] in 1841, but the first real description was not given till about 1892, when Reblaub[2] read a paper entitled "Des infections des reins et du bassinet consécutives à la compression de l'urétère par l'utérus gravide." Since then we have periodical literature appearing on the subject, a full list of which I append to this paper. This I have gone through,

and will very shortly recount the more important of the various conclusions.

Bonneau, in 1893,[3] publishes his researches, and comes to the conclusion that compression of the ureters is frequent during the course of pregnancy, and that this compression places the kidney and upper part of the ureter in imminent danger of infection. The infection, he says, comes from the intestine through the blood-stream.

Weill,[11] in 1898–99, says the infection may (1) enter through the blood, or, (2) enter through the lymphatics, or, (3) may be ascending, the kidney being attacked as the point of least resistance.

Reid,[10] in 1899, speaks of the disease as rare. He mentions two causative factors—(1) ureteral compression, (2) infection. Compression may, he thinks, be easily explained by the close relation existing between the ureters and the uterus on one hand, and the pelvic brim on the other. He quotes Cruvelhier as pointing out that in his experience all women who died during pregnancy or soon after delivery had dilated ureters. That the right kidney is the one usually attacked he considers to be due, as pointed out by Vinay, to the normal inclination of the uterus to the right, intensified in pregnancy. He regards the infection as due to the colon bacillus.

Brédier,[16] in 1901–02, calls special attention to the fact that cases diagnosed as albuminuria may possibly be cases of pyelonephritis.

Balatre,[17] in 1903, writes that pyelonephritis usually commences about the fifth month, and is caused by retention due to compression of the ureter and the entrance of an infective organism ascending or descending.

In more recent times the most important work on this subject is found in papers by Cathala, Opitz and Ziegelmann.

Cathala,[23] writing in 1904, comes to the conclusion that there are two great causes—(1) *predisposing;* weakness of the kidney in the matter of resistance, compression which he attributes to the tension produced on the ureter by the inferior segment of the uterus; (2) *determining:* entrance of colon bacillus through the blood stream into the kidney. He recognises two stages in the clinical picture—(*a*) a pre-suppurative, and (*b*) a suppurative.

Opitz, in 1905 (*Zeits. für Geburts. und Gynäkol.*, Vol. lv.), writes a full account of pyelonephritis of pregnancy.* He bases his paper on 79 cases. Pregnancy tends to bring about pyelitis (cysto-uretero-

*See abstract by Dr. Andrews in the *Journal of Obstetrics* for November, 1905, vol. viii., No. 5, p. 327.

pyelo-nephritis); there are three modes of infection—(1) an ascending from the bladder; (2) from the urine, *i.e.*, really from the blood; (3) from the lymph channels, which last may account for some cases occurring during the puerperium. One or both ureters may be dilated, usually the right as it lies further from the mid-line and so is less protected. The urethra always contains micro-organisms; it is likely that these get into the bladder during pregnancy owing to congestion and occasional retention. The valve-like communication between the bladder and the ureter usually protects the latter from ascending infection. Urine is squirted into the bladder intermittently and the valve closes. Dilatation of the ureter occurs and a column of stagnant urine fills the lower part of the ureter, and thus is established free communication between bladder and ureter. Pressure on the ureter from flat pelvis is less likely to occur. Kinking of the ureter due to a low position of the kidney may be a cause of dilatation during pregnancy. (Kelly.) Pressure, says Opitz, is exerted on the ureter as it crosses the brim. If pressure were exerted by the lowest part of the fœtus pyelonephritis would be most common during the last two months. This is not so; the symptoms commence at the fifth month.

Ziegelmann,[29] in 1905, writes that compression of the ureters between the enlarged uterus and the pelvic brim, coupled with the entrance of an organism either ascending or descending, is the cause of pyelonephritis. More usually the infection is a descending one, the organism, the colon bacillus, being brought to the kidney by means of the blood-stream. He points out that the inflamed ureter may be felt per vaginam.

Such are the opinions I have been able to abstract from the papers to which I have had access, and they all agree in the main. The point of interest lies in the question as to where and how the ureter becomes compressed, for compression seems to be an essential element rendering the kidney and the pelvis capable of being attacked by some pathogenic organism. I cannot suggest any other theory than those mentioned above, and yet at the same time we still seem to need something more definite to account for the compression. There are many other interesting points that could be raised, as, *e.g.*, treatment, prognosis to mother and child, relation to eclampsia, and the question of the treatment of one suffering from pyelonephritis during the lying-in period, but time will not permit.

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On the Treatment of Puerperal Eclampsia by large doses of Morphia, with a series of hitherto unpublished statistics from the Rotunda Hospital, Dublin.*

By Roger de la Harpe, M.D., Switzerland, *formerly second assistant to Prof. E. Bumm, Women's Hospital, Basle.*

There is no subject in obstetrics to which a greater interest attaches than to that of eclampsia. It may with truth be said that our knowledge of its pathology is as obscure as the symptoms of the disease are well known. Theorists, however, of recent years have shown a remarkable agreement in attributing the symptoms to an auto-intoxication of some kind. It seems reasonable, from anatomical indications, to assume the truth of this; but as to whether the poison is generated in the liver or in the kidneys, or is absorbed from the intestines, it is not the purpose of this paper to discuss. Neither is it intended to deal with the tissues in which it is most likely to be deposited. Much confusion has arisen from, and much harm has followed the dogmatic statements of would-be authorities concerning this disease; statements that can in no way be substantiated. For example, Edgar writes:—"Expectant or palliative treatment will almost surely be followed by death of the child, and about one-third of the mothers succumb(!) But if the uterus is promptly evacuated by suitable surgical means the child's life is preserved and the mother is practically subjected to no danger."

It will be shown later, on what a small foundation of fact these statements are based; but although such assertions as these may be disproved, they will in all probability influence the treatment for many years. Operative treatment, in the writer's opinion, is to be condemned as dangerous and useless. It is a fact that in many cases the fits continue after the uterus is evacuated, as proved by the following statistics:—In Schauta's Clinique, with a total of 342 cases of eclampsia, in 82 cases the fits originated after the birth of the child. In 185 cases, in which the fits had begun during the labour, 123 did not improve after the delivery, and in 50 of these the fits

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even increased in intensity. In the Clinique of Rostock, out of 63 cases there were only 18 in which the fits entirely ceased after delivery. Herman, in analysing 2142 cases of eclampsia, shows that active treatment gives 1 to 2 per cent. better results than expectant treatment of the most diverse kind, but even here it must be remembered that operative measures were performed in hospitals under the most favourable conditions.

It has fallen to the writer's lot to see three cases of eclampsia successfully treated in the Rotunda Hospital during his short connection with that Maternity, and the results impressed him so favourably that he determined to compile the statistics of the disease for the last 13 years, *i.e.*, since the introduction of morphia as the treatment. These statistics have not before been published, and the results are so remarkably good that they deserve to be widely known. Before dealing with the figures, however, a few words must be said as to the special method of treatment. In the year 1892 Sir William Smyly, at that time Master, on consideration of the high mortality from eclampsia during the previous years, introduced the treatment by heroic doses of morphia warmly recommended by Veit. Then intervened a transitional period, 1892–1893, during which chloroform and choral were added to morphia as the treatment. From this point onwards, Veit's treatment has been rigorously employed. Recently, it has been amplified by the addition of new measures suggested by the theories of toxœmia.

The main object of treatment must be: first, the arrest of the fits; second, the elimination of the septic toxins of eclampsia from the system; third, the placing of the patient in the best possible position for the avoidance of pulmonary complications; and, fourth, the surveillance of the conditions of the heart, lungs, and kidneys; and the stimulation of these organs where necessary.

Induction of labour is never performed, nor is labour counted on in this treatment. In fact we know that every manipulation of the cervix reacts on the already super-sensitive reflex, and precipitates the convulsions. Further, we know that such manipulations increase the risk of sepsis to which the eclamptic seems to have a peculiar liability. The only intervention permissible locally (and this only in very exceptional cases) is the application of forceps, the head being on the vulva.

We will not discuss here the prophylactic treatment which is only hygienic, and will at once take up the treatment of developed eclampsia. We will give the smallest details in the technique, for we believe them all to be essential and to have each their *raison*

d'être. Firstly: half a grain of morphia is given hypodermically, and repeated, if necessary, in a dose of quarter of a grain every two hours, up to a maximum total of two grains in 24 hours. When possible large quantities of water are given to drink; but where this practice is rendered impossible or dangerous by a semi- or a wholly-comatose condition, or by intractibility of the patient, the fluid is given by a stomach tube. By this means the stomach is washed out with three to four pints of hot water. Half a pint of water is left in the stomach, and to this are added, still through the tube, two ounces of castor oil and 3 to 4 drops of croton oil.

Immediately after the above the patient is placed on the side, a long tube is introduced gradually *per anum*, first the lower part of the intestinal canal being filled with soapy water and flushed, and then, as the tube ascends, the higher part. This manipulation is persisted in as long as fæcal material is passed through the tube. About a pint of saline solution is left in the intestine.

The patient is now allowed to lie on her side, covered with warm blankets, and with poultices about her loins (to alleviate the congestion of the kidneys), special care being taken not to make the poultices too hot. We say this because we have seen several cases where the patient was injured by poultices which would have had no injurious effect on the skin of a healthy woman, but which are dangerous in the condition of lowered sensibility and vitality, a condition peculiar to the eclamptic.

Now we come to the third point (and one that is very important where the patient is comatose), namely the prevention of fluid or foreign bodies entering the trachea and so causing pulmonary œdema and its sequences. For this purpose the patient must be kept continuously on her side; *absolutely* no nourishment must be given by the mouth, because the digestive function is in abeyance, and her head must be turned to the side to facilitate the flow of mucus from the mouth.

Another very important point we wish to emphasise is that a gag must not be used; this statement is based on the known physiological fact that swallowing is impossible unless the jaws can be apposed.

The fourth point in the treatment is carried out by injections of digitalis when the pulse becomes feeble and rapid and of atropine when the respiration becomes slow and sighing: and by saline infusions in very serious cases. Again, in cases of plethora, phlebotomy preceding the saline infusion may be of service.

We cannot lay too much stress on the importance of the washing out of the intestinal canal as thoroughly as possible. This part of the treatment aims at the increased elimination of the toxins by the

intestinal tract during the temporary suspension of the filter-action of the kidneys.

It is also notable that constipation is a frequent precursor of eclampsia.

Many theorists blame morphia as dangerous to mother and child. We admit that it may have a deleterious effect on the respiration of the mother, but hold that it has no injurious effect on the maternal kidney action.

Again, as regards the child, it will be generally admitted that the administration of morphia cannot add, to any appreciable extent, to the immense danger already existing from the presence of the eclamptic poison.

Before giving a few figures to show the results of the morphia treatment in the Rotunda Hospital, we wish to emphasize one point, namely, the necessity of commencing the treatment in an early stage of the disease. The great majority of the deaths we have to mention are those of patients who came into the hospital moribund.

Let us give a few figures from various authors for comparison with those of the Rotunda Hospital. Herman gives a mortality of 20 per cent.; Williams 20—25 per cent.; Edgar 25—35 per cent. The mortality in the Rotunda during the years 1889 to 1892, before the introduction of Veit's treatment was *35·3 per cent.* The present statistics show a mortality of *16·9 per cent.*, a reduction of more than 50 per cent. This average is obtained from the occurrence of 12 deaths in 71 cases.

From the first of November, 1892, to the first of November, 1905—being 13 years,—we find 70 cases of eclampsia occurring in 47,924 deliveries, being an average of *0·146 per cent.*, or one case of eclampsia in *694*. This number we find to be only about half that of the Viennese clinique, namely *0·25 per cent.*

It follows from the above statistics that this morbid state is remarkably less frequent in Dublin than in other places.

Conclusion.

From the numbers mentioned above we hold that we have sufficient grounds on which to base our argument in favour of the expectant treatment detailed in this paper, especially as in all cases of eclampsia this one method of treatment has been rigorously adopted.

We believe that in many cases the chief reason for more active treatment has been a want of pluck on the part of the medical attendant. We know well that it often requires a higher degree of courage to sit down and wait than to satisfy the family by a huge waste of energy.

*Delivery of the Hydrocephalic Fœtus by Spinal Tapping: A Second Case.

By J. W. Ballantyne, M.D., F.R.C.P.E., *Lecturer on Midwifery and Diseases of Women, Medical College for Women and Surgeons' Hall, Edinburgh; Physician to the Royal Maternity Hospital, Edinburgh; President of the Edinburgh Obstetrical Society.*

A little more than a year ago I communicated to the Edinburgh Obstetrical Society the record of a case of fœtal hydrocephalus in which I delivered the infant by means of spinal tapping (*Brit. Med. Journ.*, 1904, vol. ii., p. 1,567; *Trans. Edin. Obstet. Soc.*, 1905, vol. xxx.). The spinal canal was opened into in the dorsal region, a metal catheter was passed up into the cranial cavity, the fluid contents were drawn off, and the child, a large male weighing (along with the fluid) 12 lbs., was then easily extracted by manual traction upon the trunk. I have recently had an opportunity of repeating this procedure in a similar case, and I place this new instance upon record partly because of its rarity and partly on account of some interesting facts in the mother's previous obstetric history of which I was cognisant.

About 1-20 a.m., on November 28th, 1905, a message came asking me to go down to Leith to help Dr. Millard with a difficult labour. The patient, I was told, was a multipara, and the presentation was a breech; the breech, however, was still at the pelvic inlet, and the sacral promontory could be easily felt. I went to the case, therefore, expecting to have some difficulty in getting hold of the feet and in pulling the infant through what was no doubt a narrow pelvis. I was not wrong in my prognostications, but, as will be seen, it was fœtal in addition to maternal dystocia that I had to deal with, and the method by which the obstruction was overcome was quite different from any which I expected to employ.

On my arrival at the house I was told by Dr. Millard that the patient had given birth, in 1898, to an anencephalic fœtus, and that I had examined and reported upon the specimen. Some of the facts of the case then came back to my mind, but I did not gather them all together until my return from the confinement, when I was able to

* Read before the Edinburgh Obstetrical Society, December 13th, 1905.

consult my list of teratological specimens and my notes on them. I shall return to the past history of this patient later; in the meantime I simply note the previous birth of an anencephalic fœtus in her case, for it served to help me to a diagnosis of the cause of delay in the present labour.

The patient was a strong, healthy woman, 46 years of age, and 5 feet 8 in. in height. She was one of a family of five sisters and one brother, all healthy and taller than herself. Neither she nor her husband showed signs of any morbid diathesis. This was her fourth pregnancy, and during its course she had felt far from well; she was, as she herself put it, "quite unfit for her work, although she had always been a good worker." Nevertheless, she reached the full term; and at 6-30 on the evening of November 27th, the membranes burst, and the *liquor amnii*, which was not excessive in amount, came away. Slight pains came on at 9-30, and these became severe and regular at 11-30. The patient noted, however, that the pains were different from those she had had in former confinements: they went upwards, she stated, towards the chest instead of downwards towards the thighs. It is, of course, a common observation that the pains in obstructed labour (such as this turned out to be) are irregular in position, time, and strength; but in this instance they seem to have been almost anti-peristaltic. Dr. Millard was called to the patient when the pains became severe, and he then found the breech at the brim and the pelvis contracted; he sent for me, as I have mentioned, early on the morning of November 28.

I found the patient with a greatly distended abdomen in which palpation revealed nothing like a hard fœtal head, but rather a general, even, and rounded swelling extending up to the ensiform cartilage; fluctuation could be indistinctly felt. The breech of a female infant was at the vulva, and a good deal of meconium had been expelled from the child's anus. The labour had, therefore, progressed since Dr. Millard had sent for me, and the breech was no longer jammed at the brim, but had come down to the vulva. The back of the child was lying to the front and left side. With some difficulty I brought down the feet and legs. I then passed up my hand, and with still more difficulty dragged the arms down through the brim, which showed a moderate degree of contraction. I then noticed that there was a ruptured spina bifida in the lumbar region of the infant. From this fact, from the former history of the birth of an anencephalic fœtus, and from the large size and peculiar feeling of the uterus I now came to the conclusion that I had to do with a case of hydrocephalus in which the greatly distended head was lying above the pelvic brim.

With little hope of success, I tried to draw down the head by traction upon the body; no effect was produced. Had I then attempted to perforate the fœtal head I should have met with great difficulty, for the pelvic brim was narrow and the head was quite above it; but I had no intention of trying this plan, for experience had taught me an easier, a safer, and a more expeditious way of delivering the aftercoming hydrocephalic head. I determined to utilise the opening into the spinal canal in the lumbar region, and to pass a catheter up through the canal and into the cranial cavity, and so to draw off the fluid and allow the head to collapse. This manœuvre I had successfully carried out in the case which I recorded a year ago, and it seemed to me that it ought to be equally efficacious in the present instance. In that case, however, I was able to choose the level at which I opened into the spinal canal, and I chose one, of course, as high as possible, so as not to require a longer tube than was necessary. In the present case the level of the opening was decided for me by the position of the spina bifida; and I therefore required a long silver catheter to reach the interior of the cranium, for the spinal defect was, it will be remembered, in the lumbar region. Dr. Millward procured for me a male, silver catheter, No. 6, and it answered the purpose well. I made a slight incision over the membrane covering the orifice of the lower end of the upper segment of the spinal canal at the spina bifida, and passed the catheter upwards into the cranium. I had previously straightened the instrument somewhat, as I did not require so marked a curve. When I felt the tip to be lying free in the cavity, I moved it about in various directions, so as to make sure of reaching all the parts of the hydrocephalic sac. The fluid, quite clear and of a faint yellow colour, then began to flow freely, and in a few seconds Dr. Millard, whose hands were on the abdominal walls, said that he could now feel the bones of the collapsing hydrocephalic head quite easily. When the water ceased to flow from the catheter, I made traction on the trunk of the infant. There was some difficulty in drawing the head, collapsed as it was, through the brim of the pelvis, on account of the contraction which existed there, but this was easily overcome, and the birth rapidly completed. The placenta came away a few minutes later; but the membranes were adherent, and had to be extracted manually from the uterus. There was little hæmorrhage. The patient made a good recovery.

The infant, a female, weighed more than 10 lbs. after the head had been redistended with water (about 25 ozs.), and the circumference of the head in the occipito-frontal plane was 57 cms. (23 inches)

Fig. 1. Hydrocephalic Fœtus. Anterior Aspect.

Fig. 2. Hydrocephalic fœtus, showing the spina bifida by means of which the fluid was drawn off.

(Figs. 1 and 2). The placenta was large, but rather thin, a peculiarity which had also been noticed in connection with that of the anencephalic fœtus, otherwise it appeared to be normal.

In connection with this case, two somewhat interesting subjects (amongst others) call for consideration and comment: one of these has reference to the clinical history of the patient, and the other to the operative treatment which was adopted to overcome the difficulty in labour.

The obstetric history of this woman may be briefly narrated. She was first pregnant in the year 1895, when she was thirty-six years old. The infant, a female, was born six weeks before term. It was dead, and the doctor who attended her said to her that it had been dead for six weeks. No cause for the fœtal death was known except a fright. The second pregnancy was in 1898. She was then under Dr. Millard's care. There was persistent vomiting in this pregnancy. Movements were first felt at the beginning of the seventh month, and labour came on a week later. There was marked hydramnios, the *liquor amnii* was of a turbid colour, the quantity being estimated at $2\frac{1}{2}$ gals. The fœtus, a female and anencephalic, was extracted with the aid of forceps; and the placenta was entirely adherent and had to be removed manually. The placenta was large and thin, no part being more than half an inch in thickness, and some parts being only a quarter of an inch; in other respects the afterbirth had a normal appearance save for one or two fatty patches; the membranes seemed normal. The fœtus had all the external appearances of anencephaly; there was complete absence of the cranial vault; the face looked directly upwards and the cranial base directly backwards; there was no indication of the neck groove in front, and the ears were deformed. The spinal canal was open down to the level of the upper end of the sacrum. The hands, feet, and external genitals were normal. Death had evidently occurred a few days before birth, for the skin was peeling off in several places. The sectional examination of this fœtus revealed an unexpected malformation associated with the anencephaly, viz., absence of the diaphragm on the left side, with displacement of several of the abdominal viscera into the thorax and dislocation of the heart to the right side of the body.

The patient's third pregnancy ended in the birth of a living male child. This was in 1900. The position was occipito-posterior, and there was difficulty on account of the pelvic contraction as well; but the child was born alive and is now well and healthy. I saw him the night that I was called to his mother's fourth confinement; he was then five years old, was well grown, and had no malformations of

any kind. The details of the fourth pregnancy I have already given; it ended at full term in the birth of a hydrocephalic female fœtus and there was no hydramnios. Dissection revealed no hernia of the diaphragm in this fœtus.

The first detail in this woman's history which calls for comment is the birth of two monstrous fœtuses, an anencephalic and a hydrocephalic. I do not know what was the state of the product of the first pregnancy; it also may have been deformed, but I have not been able to settle the point, at any rate it had been dead *in utero* long before its expulsion. Even if the first pregnancy be left out of consideration, we have here to do with four labours, two of which ended in the birth of monstrosities; in other words, fifty per cent. of this woman's infants were teratological. Now the rarity of the occurrence of markedly teratological births in obstetric practice is very great; even the commonest monstrosity (anencephalus) does not occur oftener than once in two or three thousand cases, whilst hydrocephalus is said to be met with once in three thousand births. (Out of 350 cases of monstrosity and fœtal disease that I have had an opportunity of examining, there have been forty-nine anencephalic fœtuses and eight hydrocephalics, or fourteen and two per cent. respectively.) Two explanations may be advanced to account for the frequency of teratological developments in this woman's offspring; either we have to do with a simple coincidence, or else she was the subject of what I have called recurrent monstriparity. I am strongly of opinion that the association of the two teratological conditions was not coincidental but relational in this patient. Without going any further than the cases which have come under my notice I find too many instances of this tendency to recurrent monstriparity for them to be explained by the theory of coincidence. With regard, for instance, to anencephalics, in three at least of my forty-nine cases, the mother twice gave birth to this type of monstrosity. Outside of my clinical material, there have been numerous instances of two or three anencephalic fœtuses having been born to the same mother. Further, a remarkable case was reported in 1840, in which six out of a family of nine infants were anencephalic and one other was also a monstrosity although not anencephalic (J. Martin, *Med. Exam.*, Philadelphia, n.s., 1840, vol. xxiii.). Again, to return to my cases, a woman may give birth to an anencephalic fœtus as the result of one pregnancy and to a hydrocephalic fœtus as the result of another. I have met with two instances of this association, the one described in this article and another to which I shall refer immediately. Hydrocephalus also may show this peculiar family prevalence, and I have met with at least

one case of it. I have also met with an instance in which a woman gave birth at one time to an iniencephalic fœtus and at another to a hydrocephalic one. I have noted this same tendency to recurrence in connection with fœtal diseases, and cases are on record in which one woman has given birth to two or more fœtuses with general dropsy or with ichthyosis or with jaundice (due to obliteration of the bile-ducts); so that the phenomenon is not peculiar to monstrosities.

The best example I have met with of recurrent monstriparity was that which I reported in 1900 (*Amer. Journ. Obstet.*, 1900, vol. xli., p. 577). It was that of a healthy woman, well formed but for the absence of certain muscles of her thumbs, an anomaly which she had in common with her mother and a sister. Her first child, a boy, was well formed; so was her second, likewise a boy. Her third pregnancy ended in an abortion. Her fourth gestation resulted in the birth of a hydrocephalic female fœtus with absence of the right thumb and radius. Her fifth child, a girl, was born alive and is still alive and well. Her sixth was a postmature, dead-born, anencephalic fœtus, with a malformed thumb and other malformations. Her seventh was a congenitally weak female infant who survived for only six weeks; and her eighth was a prematurely-born female infant, with early hydrocephalus, absence of both radii and right thumb, malformed state of left thumb, and a battledore placenta. In this instance, as in the one which I have put on record now, both hydrocephaly and anencephaly occurred in the obstetric history of the same patient, and in one of these instances there was also a curious hereditary tendency towards malformation of the thumbs. To the phenomenon which I have illustrated by these various cases I have thought that the name *recurrent monstriparity* is most appropriately given. The term *family prevalence* is hardly suitable, for it has generally been used of cases in which several brothers or sisters are affected with the same disease; in the instances to which I have referred the monstrous state is not necessarily the same, and there is rather the tendency to give birth to malformed infants than to infants with any special malformation. It is interesting to note that experimental teratogeny, so far as it has been successful, seems to be governed by the same laws; for it has been found that while it is possible to produce monstrosities artificially it is not possible to produce any given type of monstrosity.

Another interesting feature both in the case recorded in this communication and in my case of 1900, is the *sex-preference* shown by the teratological states. In both histories the females were affected and not the males; in one instance the mother gave birth to three

malformed or dead female fœtuses and to one healthy male; in the other, she had two healthy boys and five girls of whom three were monstrous, one died in six weeks, and one only was healthy.

This sex-preference has been noted by many teratologists, and I have had examples of it in the material I have collected. It must be remembered that it has been stated that monstrosities of all kinds are commoner in females than in males; and this is certainly true for anencephalus, for out of forty-nine anencephalics that I have had sent to me thirty-two were females and ten only were males (in seven the sex was not noted). But sex-preference does not always bear this out; for there are cases on record in which male fœtuses have shown the teratological development and not female.

One other observation I have been able to make with regard to recurrent monstriparity. It is that the monstrosities bear some resemblance to each other, if not in appearance, at least in origin. Thus hydrocephalus, spina bifida, and anencephalus come together in the same family history: they are all malformations of the nervous system, and they probably all originate in the same way (although that way may not yet be agreed upon). This fact reminds us of the manner in which morbid phenomena, such as the manifestations of the rheumatic diathesis (joint pains, heart disease, chorea, subcutaneous fibrous nodules), also tend to affect various members of the same family. We are almost forced to the conclusion that there is a sort of monstriparous diathesis, or, I prefer to say, a special tendency to the appearance of antenatal morbid states, both teratological and nosological, in the reproductive history of the same woman.

From the study of these facts I think some conclusions can be drawn. In the first place, we are forced to believe that when a woman has given birth to a malformed fœtus, it is very likely that she will do so again. Instead of the fact that she has had one monstrosity making it almost absolutely certain (by the law of averages) that she shall not have another, it rather makes it likely that she will again give birth to a monstrosity although not necessarily of the same kind as before. This, I think, is one reason why one medical man will meet with several monstrosities in his first thousand midwifery cases whilst another will go through his life without chronicling a single one. The former has a monstriparous family or families in his clientèle, the latter has not. Again, it must be concluded that a monstrosity tends to recur in the same or in an allied form, *e.g.*, anencephalus occurring twice or thrice, or alternately with hydrocephalus and spina bifida. Yet again, if the monstrosity be of one sex, the recurrent malformation will most probably occur in an infant

of the same sex. I hope elsewhere to expand these conclusions and give deductions from them in more detail, but I must devote the remaining part of this contribution to some remarks on the obstetric interference undertaken in the case I have described.

In my communication to this Society last year (*Trans. Edin. Obstet. Soc.*, 1904–5, vol. xxx., p. 20), I gave at some length, details of the method of delivering the aftercoming hydrocephalic head by spinal tapping. I need not repeat these details here, except as regards one particular in which they differed from those employed in the present case. After I had drawn the body of the fœtus down to the vulva I found that there was a spina bifida (there was no spina bifida in my first case), so I used the teratological opening into the spine instead of making an artificial one. The only inconvenience was the low level of the opening, but had I met with the slightest difficulty in reaching the cranial cavity, I could at once have made an opening in the upper dorsal region. I think it will be found necessary always to use a metal catheter to draw off the fluid. At any rate, a former pupil recently furnished me with the details of a case in which a rubber catheter was tried and the fluid not reached. The object of the operation, in one sentence, is to overcome a grave obstruction existing above the pelvic brim by a simple operation performed outside the vulva. The two cases I have reported prove that this object is admirably accomplished.

The previous history of this operation, as performed in France and America, was given a year ago in my paper above named; to that communication I refer the reader.

REVIEW OF CURRENT LITERATURE.

OBSTETRICS.

On the Freezing Point and Amount of Chlorines in the Blood and in the Urine in the Puerperal state, and particularly in Eclampsia.

MACÉ and PIERRA. *Bulletin de la Soc. d'Obstét. de Paris*, November, 1905.

THIS is a record of an investigation which has been proceeding for more than a year. The authors have studied the freezing point and the amount of chlorines in the urine in four different classes of women:—

(1) In non-pregnant women (5 cases).
(2) In normal pregnancies (5 cases).
(3) In pregnancy with albuminuria (7 cases).
(4) In eclampsia (27 cases).

And in these last the serum of the blood drawn off in the bleedings which were usually practised has been utilized for the investigation of the same two points.

The whole investigation is recorded in a series of tables which cover more than thirty pages. It will only be possible here to mention shortly the conclusions reached by the authors, which being based upon a piece of work so careful and elaborate cannot be lightly dismissed.

In regard to non-pregnant women the authors confirm the figures arrived at by other investigators, and in consequence feel able to use them for purposes of comparison.

The pregnant women examined were all nearly at term. They found the volume of urine increased while the specific gravity remained, on the average, the same as in the non-pregnant state. The mean freezing point was 1°·15, as compared to 1°·25 in the preceding table. The amount of NaCl in a litre was slightly less than in the non-pregnant state, but the amount secreted in 24 hours was considerable more, 17·5 to 12·5. The figures given in the table indicate great activity of the renal circulation.

In pregnancy with albuminuria the women were examined on six

consecutive days. They received on the first three days an ordinary diet, and on the second three days a rigid milk diet. The conclusions reached are that the milk diet lowers the specific gravity of the urine, the molecular concentration, and the amount of chlorines, both per litre, and in 24 hours. The milk diet moderates the activity of the renal circulation.

So far the tables are general, but in the cases of eclampsia full details are given of the clinical course, and of the autopsy when a fatal result occurred, which was not often, as well as of the particular investigation of the blood and the urine.

The 27 cases are divided into two series. The first 17 received the following treatment:—bleeding, subcutaneous injections of normal saline for 24 to 36 hours, and then rigid milk diet. The remaining 10 were treated as follows:—bleeding, abundant saline purgation, intestinal irrigation, and sterilized water only for the first 48 hours, when milk was introduced into the diet in small quantities at first, and diluted.

Neither chloroform, chloral, nor morphia was given save in one or two, just at the moment of delivery. The authors conclude as follows:—

A. *For the blood.* (The serum was obtained from the bleeding made on entrance to the clinic, before any treatment). The average freezing point was 0°·61, which is considerably more than in normal pregnancy, or non-pregnant women, and corresponds to a renal insufficiency.

The amount of chlorines was in the mean 7·3 for 1,000 c.c., which is notably more than the average quantity of NaCl in the blood. There appears therefore to be in the majority of cases a pathological retention of chlorines in the serum.

In only two cases was a second bleeding practical, and the authors state that it is difficult to base anything on such small figures, but so far as they go they confirm the view that successive bleedings diminish the molecular concentration of the serum, and the amount of chlorines.

B. *For the urine.* "The prognosis in eclampsia is rendered favourable to diuresis, by dilution of the urine, by a molecular concentration normal or diminished, and by the equilibrium of the chlorine exchanges. But from our observations it results that with injections of normal saline (1) the volume of urine passed is diminished; (2) the dilution is less great; (3) the freezing point is lower, and in consequence the molecular concentration greater; and (4) the quantity of

chlorines eliminated remains, for several days at any rate, inferior to that of the chlorines absorbed."

The final conclusion of their investigation is that the injections of normal saline solution ought to disappear from the treatment of eclampsia. The milk régime itself appears dangerous to the authors, because it necessarily carries with it its contingent of chlorines. A pure water diet ought to be preferred, and should be established as soon as possible, to facilitate elimination, and by this means to prevent the recurrence of fits.

At a time like the present when the treatment of eclampsia varies in every hospital, and in the hands of every individual, these views, whether they be accepted or not, are worthy of careful consideration.

R. Hamilton Bell.

Missed Labour with Placenta Prævia Centralis.

Chvojka. *Zentral. für Gynakol.*, 1905. No. 43.

The patient was aged 39 years, and was pregnant for the sixth time. She had been married eight years, had worn a pessary for retroflexion, and had been curetted for hæmorrhage following abortion at the fourth month. Electricity had been used after the curettage to excite the menstrual flow, as the latter remained absent for seventeen months. After the fifth pregnancy there followed another period of amenorrhœa, lasting twelve months; this was again rectified by electrical treatment. The patient expected the sixth and final pregnancy to end at the beginning of July, 1905. On July 27th, labour pains set in, but soon ceased. Previously fœtal movements had been active, but after the pains they ceased entirely. No heart sounds could be heard. The patient had occasional pain of a stabbing character above the symphysis, and a sense of cold in the abdomen. She became very depressed and weak. On examination the head was thought to be felt through the anterior vaginal fornix, the breech at the fundus. The back was not palpable. The cervical canal was two centimetres long; the finger could be passed into the internal os. Weak pains again set in two months after the expected time of delivery. Brown mucoid discharge escaped. The pains continued from September 26th to 28th; then again ceased whilst the os was still undilated. Delivery was accomplished by turning. The child weighed five kilogrammes. In spite of strong uterine contractions the placenta did not come away. It lay partly in the vagina and partly caught by the imperfectly dilated cervical canal.

It was removed by traction. The placental area was twice as extensive as the membranes, so that the placenta must have occupied the greater part of the inner surface of the uterus. As is usual in such cases, the placental tissue was thin, atrophic, brittle, and rough. The cord was normal. There was a foul discharge for the first four days of the puerperium, but the patient made a good recovery, except for the retroflexion, which returned. The writer regards this as a case of missed labour produced by a placenta prævia. He says the low situation of the placenta prevented "the lower uterine segment from developing," and was the cause of the weakness of the pains. Since the pains were weak there was no hæmorrhage, and the cervical canal was not dilated and drawn up. The theory of missed labour is based on the size of the child and the calculations of an intelligent patient who expected her confinement to take place early in July, whilst it did not begin until July 27th, and was finally completed with manual assistance on September 28th. The author concludes by speculating on the causes of the death of the fœtus. Chvojka has afforded no proof whatever that the placenta was lying over the os uteri. It was apparently not felt during ante partum examination, although the internal os admitted the finger. Nothing is said about its being torn through or ruptured in any way, and a good portion of it lay in the vagina after delivery of the child, and that which remained in the uterus was easily withdrawn, and would probably have been as easily expelled by Crédé's expulsion method. The character of the placenta, *i.e.*, its brittleness, roughness, &c., shows that it was no longer "quick." The case seems one of missed labour in which the after-coming placenta showed evidence of having been dead for some considerable time.

CUTHBERT LOCKYER.

Cæsarean Section.

OLSHAUSEN. *Zentral. für Gynäkol.*, 1906. No. 1.

THE author publishes some general remarks upon 118 Cæsarean sections performed in his clinic by himself and his assistants. The indications for the operation were:—Contracted pelvis, 91; eclampsia, 7; myoma, 6; carcinoma uteri, 4; vaginal fixation, 4; nephritis, 2; heart disease, 2; scar contractions in cervix and vagina, 2.

Of the contracted pelves, 71 were rachitic (mostly irregularly contracted). Cæsarean section was performed five times for small round pelvis (four patients); five times for obliquely contracted

pelvis (four patients); twice for transversely contracted pelvis (both times in same subject); twice for pseudo-osteomalacia; three times for scoliotic pelvis; once for kyphoscoliotic pelvis; and twice for tumours of the bony pelvis.

Of the other indications, it is a matter of regret that the writer only discusses eclampsia. He lays down no hard and fast rule as to when and when not to operate for eclampsia, but says that, in a vertex presentation with a well dilated os, the accoucher will, of course, hasten labour by forceps or turning and extraction. When the cervix is expanded, but the os not sufficiently dilated for extraction, incision or dilatation by Bossi's method is called for. In other cases of apparently mild type, especially in multiparæ, and in primiparæ with dilatable soft parts, it is sufficient to rupture the membranes. In severe eclampsia at the beginning of, or before the onset of labour, Olshausen considers Cæsarean section, either abdominal or vaginal, the correct treatment. He has performed vaginal Cæsarean section for eclampsia on twelve occasions in 1904, with three deaths (all from eclampsia). For the same disease the writer has performed the classical operation seven times since 1895. Two patients died—one of eclamptic coma a few hours after the operation; the other of hypostatic pneumonia two days after delivery. Considering that he only operates in very severe cases, the author is quite content with these results. With regard to the children in cases of Cæsarean section for eclampsia, Olshausen found them frequently in a state of morphine narcosis, and remarks that this condition may easily be taken for asphyxia. Fœtal prognosis is not mentioned.

Certain useful points in operative technique are given. The abdominal incision should be made very high up and end eight centimetres above the symphysis pubis.. The uterus is then turned out through the wound, a mattress sponge inserted behind it, and the upper part of the wound brought together by clamps. The placenta can, almost with certainty, be avoided by noting where the largest veins are situated in the uterine wall. If the anterior wall of the uterus is more markedly convex than the posterior it is nearly certain that the placenta has an anterior insertion. The course of the round ligament is a most unreliable guide.

After finding the placental site, a sagittal section is made through the fundus and prolonged on the side unoccupied by the placenta. It is just as easy to incise the posterior as the anterior wall of the uterus.

For hæmostasis, two grammes of a six per cent. watery solution of ergotin is given twenty minutes before the operation is begun.

This is, if necessary, repeated whilst the operation is proceeding. Ergot does not harm the child or produce asphyxia.

Any kind of cervical compression is unnecessary, and even contra-indicated, since it leads to hæmorrhage when it is discontinued. The author uses soft catgut, sterilised in alcoholic phenol solution. Silk, he says, leads to fistulæ. Eight, ten, or twelve sutures are used to unite the muscle, and stress is laid on the inclusion of a wide area of muscle. The peritoneum is closed by looped sutures.

Olshausen has seen one small rupture in the fourteen cases where he has performed the operation of Cæsarean section for the second time on the same subject, and this he attributed to an insufficient amount of muscle being included in one of the ligatures.

In seven women the operation was twice repeated; in two, thrice; and in three four times repeated. The twelve women recovered from the twenty operations. Contracted pelvis was the indication in each case. Sterilization by partial tubal excision was performed four times at the patients' wish.

Of the 91 operations for pelvic contraction nine had a fatal issue. Olshausen himself operated in 65 cases, with three deaths; his assistants operated in 26 cases, with six fatalities.

CUTHBERT LOCKYER.

The Use of Antidiphtheritic Serum in the Treatment of Stomatitis and Vulvo-vaginitis in Infants.

GIORELLI (E.) and BRINDA (A.). *Archives des Médicine des Enfants*, December, 1905.

THE writers have obtained excellent results in the treatment of aphthous and ulcerative stomatitis in infants, by the use of anti-diphtheritic serum. From one to six injections were necessary in each case. They were first induced to adopt this method of treatment in the case of a child aged four years who suffered from extensive ulcerative stomatitis which refused to yield to the exhibition of the usual remedies. Six injections of serum were given and the ulcers rapidly healed. Bacteriologically streptococci and the pneumo-bacillus of Friedländer were found.

Encouraged by these successes they applied antidiphtheritic serum to the treatment of vulvo-vaginitis in infants, using from one to five injections in each case. They treated nine cases in this way.

In six no bacteriological examination was made, and the writers consider they were simple and not due to the gonococcus. In these the gonococcus was found in the discharge. In all these cases rapid recovery followed the use of the serum.

FRANK E. TAYLOR.

GYNÆCOLOGY.

Comparative Histological Investigations on the Occurrence of Glandular Formation in the Ovarian Stroma.

FRAENKEL (L.). *Archiv für Gynäkol.* Bd. lxxv., Ht. 3, S. 443.

THE above is a very valuable contribution to a much vexed question as to the function of the tissue designated *glande interstitielle de l'ovaire* by Limon. The article is a very long one, occupying as it does sixty-five pages of the *Archiv*. The first seven pages are taken up by an account of the work done by French writers on this subject, principally by Limon and Bouin, and also by Fourneaux, Ed. van Beneden, and v. Winiwarter. The author states that very little literature relating to the question is to be found in German publications, but he is able to quote extensively from Cohn, and von Ebner in Kölliker's Handbook on the study of human tissues, likewise from Rabl and Nagel.

The author's own work is supplementary to that for which his name is already famous, in which he has shown that the corpus luteum is a gland with an internal secretion. In his desire that this theory shall be accepted as a fact he is careful to add that further anatomical and physiological investigations are needed to support it. In the present work Fraenkel has asked himself the question—is any other part of the ovary capable of affording an internal secretion? and in order to answer it he has made an exhaustive anatomical research on the tissue known as Limon's "*glande interstitielle de l'ovaire.*" For this purpose he has studied serial sections of human ovaries obtained from gravid and non-gravid subjects, and from cases of chorioepithelioma, vesicular mole, osteomalacia, and myomata. To this he adds the comparative study of the ovaries obtained from 45 animal species comprised in the orders Marsupials, Ungulates, Carnivora, Rodents, Insect eaters, Cheiroptera and Apes. After describing his histological technique he devotes thirty-three pages to a description of the naked-eye and microscopical characters of this vast amount of material, into the details of which it is impossible to enter at present. Only eight illustrations have been allowed, which,

considering the variability in type of the tissue under discussion, seems little enough. It is clear from Limon's work and the researches of Fraenkel, that a tissue has been demonstrated to exist in the ovary, having nothing to do with the true corpus luteum, which, from its histological features, might well be considered as capable of affording an internal secretion. This tissue consists of cells, polyhedral in shape, and rich in a markedly granular protoplasm, which present nuclei showing a chromatin network. These cells are present in groups, and strands forming loculi and lobes. They aggregate to form large masses of highly packed or loosely arranged tissue, which is permeated by a capillary system and a variable amount of fine connective tissue. In many animals this tissue occupies $^{1}/_{10}$—$^{9}/_{10}$ of the entire ovary, in fact it may quite displace the original stroma of the gland. The cells have a yellow or green colour. Considered as a whole this tissue is comparable to that of a corpus luteum. The latter, however, is limited by a circular theca externa, whilst the cells of the "interstitial gland" are not thus circumscribed. The cells of the corpus luteum are larger and are more intimately related to capillaries. Whilst the cells of the "interstitial gland" may be green in colour, those of the corpus luteum are always yellow. Owing to the richer blood supply of the corpus luteum this structure is of looser texture than the "gland." The relationship of the latter to atresic Graäfian follicles is discussed. Whilst as already stated the "gland" is quite separate and distinct from the corpus luteum, it may, in some animals, be definitely traced to originate in retrogressive follicles. But here arises a point of obscurity, for the author refuses to express an opinion upon the nature of the relationship—he says there *is* a relationship—between the cells of the "interstitial gland" and those of an atresic follicle. To settle this point an extensive research on embryonic tissues is necessary, and another difficulty arises from the fact that under the term "atresic follicle" various structures, histogenetically very unlike each other, are included.

Another tissue which bears some resemblance to that in question is the so-called "medullary-strands" found in the hilum of the ovary, but for differentation, the position of this tissue is decisive, and moreover the cells and their nuclei are smaller, they lack the green or yellow colour; they more resemble the cells of a primordial follicle, and their blood supply is not so great.

In twenty-four animal species the characteristic interstitial-gland cells were found by Fraenkel to be absent. In no order was it found in all the species, and in closely allied species there were signs of inconstancy, take for one example—the Bears. In the Ursidæ it

was present, in Procyonidæ absent. It occurs most frequently in Rodents. In Marsupials four species out of six examined possessed it. In Carnivora it was found in nine and not in six. In Apes two examples were found in six examined. In Ungulata it was not found. From the above facts the author draws the first conclusion of his summary, viz.:—

1. The inconstancy of the "*glande interstitielle.*"

His next point of note is that:—

2. The topographical distribution of this tissue is very variable. It can completely fill the ovary, but it generally leaves the outer layers of the cortex free. The primordial follicles often lie completely in this tissue (cat, marten, fox). The hilus is generally free from it.

The zone of medullary stroma seems to be the site of election. Again:—

3. The character and position of the cells vary enormously. According to Fraenkel there are the following types:—

(*a*) The principal type. The greater part of the ovary is taken up with this tissue. It unites cortex to hilum by loculi and lobules. The cells are closely packed, are dark, granular, and contain fine droplets (? fat). These are seen best in rodents, such as rabbits, guinea-pigs, and in long-tailed monkeys.

(*b*) The cells are loose, the septa finer, the loculi are round and contain many centrally situated degenerate ova, best seen in wombat, polecat, fox, shrew, mouse.

(*c*) The cells are clear, large, and contain vacuoles (stoat, marten, civet cat, domestic cat).

(*d*) The cells are small, somewhat larger than ovarian stroma cells, and only distinguishable from these by the presence of a well arranged capillary network (mouse, rat, bear).

4. As regards the nuclear structure, it varies within very wide limits. Chromatin was most abundant in the form of granules and threads, or it filled up the nuclei by clusters. Mitoses were rare.

5. The capillary supply varied; it was seldom so abundant as in the corpus luteum; it was often very sparse.

The size of the cells, the amount of their protoplasm, and general contents bore no relation to the capillary blood supply. The least highly differentiated cells had the best capillary system (marten and stoat, as opposed to polecat and wombat).

6. The septa and trabeculæ varied in width, direction of the nuclei, and colouring. In some animals each seemed to occupy a separate compartment shut off by delicate septa from the adjacent cells.

Ten of the animals from which ovaries were taken were gravid. This fact made no difference to the character or amounts of interstitial gland tissue.

Fraenkel finds no trace of the interstitial gland tissue in human ovaries, or in the highest apes and largest mammals. He therefore comes to the conclusion that it cannot serve any great, general, or important function, and in comparing it with the corpus luteum, he remarks that whilst the latter has most constant anatomical characters such as we associate with an organ having a definite function, the former is most inconstant.

CUTHBERT LOCKYER.

The Healing of Wounds of the Ovary.

DI CRISTINA. *Monats. für Geburts. und Gynäkol.* Bd. xxii., Ht. 5.

IT has been suggested, and is more or less accepted as a fact, that in some cases injured organs or individual cells of organs are able to regenerate themselves after injury. There is no doubt that this question is of some interest, and the possibility of a true regeneration versus a healing by scar formation is the problem that has to be settled. In the case of the ovary it has been asserted by Pugnat that regeneration of germinal epithelium and new formation of Graäfian follicles has been seen by him after experimental injuries in rabbits. Bidoni, on the other hand, asserts that where there is actual loss of substance, the ovary heals only by the formation of scar tissue. Simple linear wounds, on the other hand, heal without leaving a trace. Here there can be no question of regeneration, as healing takes place by direct union of the wound surfaces.

The question can be debated if, after experimental injuries, fragments of cells can be demonstrated in process of mitosis, and thus whether the wound surfaces as a whole can be regenerated. In the case of the ovary the size of the organ before and after healing of a wound with loss of substance may be taken as a rough indication of the process of regeneration. The author performed a series of experiments on the ovaries of guinea pigs. He performed aseptic operations, removing portions of the ovary of one side in each case. In five out of ten animals complete recovery (of the animal) took place, and the ovaries were removed at intervals of 8 and 16 days, 1 and 2 months after the operation, and preserved for examination. In every instance it was found that the wound had healed by the formation of new connective tissue, which had gradually contracted and produced a scar. The scar became more and more superficial as it got older,

forming at the end of two months a thin capsule of dense connective tissue with very few nuclei or blood vessels. In no instance were any mitoses visible in any definitely ovarian cells, and no attempts at regeneration of germinal epithelium or follicles were to be seen.

It was also noted that in every instance the ovary was smaller than it was before injury, and at the end of two months was very markedly smaller.

From these experiments, then, it is clearly demonstrated that regeneration of the ovary, at least under these circumstances, does not take place.

THOS. G. STEVENS.

Experimental Contribution to the Etiology of Ovarian Embryomata and Adenomata.

BASSO. *Monats. für Geburts. und Gynäkol.* Bd. xxii., Ht. 5.

RECENTLY the histology and origin of dermoid cysts and embryomata have occasioned considerable discussion, and a fair amount of experimental research has been carried out on the subject. The views of Wilms, Bandler and Bonnet, more or less opposed to one another, are well known, those of the first of the three being commonly accepted. Wilms holds that the ovary alone can produce such tumours, and believes that a "sexual cell" must be the origin. This sexual cell, by means of some unknown impulse, takes on the growth which results in a dermoid cyst or embryoma. Bonnet, on the other hand, holds that it must be a fertilized ovum, or part of a fertilized and segmenting ovum or polar body from which these tumours are derived.

On the experimental side Féré, Mauclaire, Traina, Delle Chiaie, and Wilms had some success, also many failures, in attempts to transplant portions of embryoes, ovaries, skin particles, jaw bones, etc. It is unnecessary here to repeat their experiments, many of which are extremely interesting but inconclusive.

The author made an emulsion of an ovary and part of a testis removed from rabbits under strict antisepsis, cutting them up into small portions and rubbing them together in a mortar with normal saline solution at 37°C. Portions of this emulsion were placed between the layers of the mesometrium in a female rabbit, and under the peritoneum in other places in other rabbits. These animals were killed at various times after the operations from 14 days to 4 months. In no case was any new growth found. Testicular elements, however, could be recognised still, after 15—30 days, whilst no trace of ovarian tissue could be found.

In another series of animals, an ovary of a rabbit, or guinea pig, was carefully removed and sutured inside the tunica vaginalis testis of a rabbit or guinea pig. These animals were killed at a later date, and in no case was there any tendency to a new growth; though in each the testis atrophied and the ovary was absorbed.

The author concludes that although these experiments were without result, perhaps by some change of technique the results might not be the same, and that further research is required before any result can be arrived at.

THOS. G. STEVENS.

On the Treatment of Inflammatory Tumours of the Appendages.

STEFFECK. *Münch. med. Wochenschr.*, December 12th, 1905.

THE writer points out the frequency of peri-uterine inflammatory affections; they constitute 56 per cent. of all his cases. He contends that acute inflammatory tumours, chiefly due to gonorrhœa and to infected abortions, will resolve under non-operative treatment by prolonged rest in bed, along with the administration of narcotics and the application of fomentations. The only exception to this line of treatment is afforded by tumours of the Fallopian tubes of acute inflammatory origin, which grow rapidly in spite of absolute rest. The operation of choice then consists in incision of the posterior vaginal fornix with subsequent drainage.

In the treatment of chronic inflammatory affections of the appendages Steffeck is guided by symptoms rather than by the physical signs revealed by palpation of the pelvic organs. Here again prolonged rest in bed is the most important factor in treatment. Its duration can be shortened by the use of massage, ichthyol—in the form of tampons, ointment and internal administration—and hot air baths which should be given daily for one hour to one hour and a half, at a temperature of 80° to 100°C.

In cases where this line of treatment has been pursued without effect for four weeks, conservative treatment is useless, and operation is indicated. Three methods of operating are practised by Steffeck:

1. Vaginal incision. This is indicated in the case of purely tubal swellings, where the ovaries are unaffected, as in pyosalpinx and hydrosalpinx.

2. Vaginal extirpation of the appendages alone. This procedure is indicated in very chronic cases, where tubo-ovarian swellings are present.

3. Vaginal extirpation of the uterus alone or along with the appendages. The radical operation is indicated in cases where the uterus is affected along with diseased appendages of both sides, as in very old-standing cases of bilateral pyosalpinx associated with chronic metritis and peri-metritis, and in cases where the uterus cannot be differentiated from the appendage-tumours.

The writer has performed 145 vaginal operations for these conditions, with two deaths, giving a mortality of 1·38 per cent.

FRANK E. TAYLOR.

On Fatal Intra-peritoneal Bleeding in Uterine Myomata.

STEIN. *Monats. für Geburts. und Gynäkol.* Bd. xxii., Ht. 5.

BLEEDING into the peritoneal cavity apart from rupture of an ectopic gestation or tubal abortion is not a common accident. It is known to occur occasionally from ruptured veins in the broad ligament or varicose veins of the ovary, but apparently Schauta is the only writer to mention the possibility of bleeding from the vessels on the surface of a uterine myoma. Schauta does not, however, support his statement by any actual cases. Stein reports the following case which is of great clinical interest:—E.B., 39, was brought in a collapsed condition into the Frauenklinik at Heidelberg, with the history that she had been seized with burning pain in the lower abdomen and had become unconscious while trying to get into bed. Her previous history was not of interest, the menstrual periods having been regular. A diagnosis of internal bleeding was made, saline infusion and camphor injections were given, and she was brought to the clinic for operation. The patient was greatly collapsed, and on examination a tumour which apparently was continuous with the right side of the uterus was found, and much free fluid was diagnosed in the abdomen. A provisional diagnosis of ruptured tubal gestation was made, in spite of the patient's age, and a laparotomy was decided on, although the patient was in a most desperate condition. On opening the abdomen much fluid blood escaped, two myomata were found in the uterus, on one of which were many very large veins. One of these veins had a tear in it 3 or 4 millimetres in length. The tubes and ovaries were quite free. No other source of bleeding could be found anywhere in the abdomen. The uterus and tumours were removed by supra-vaginal amputation and the abdomen was closed. Meanwhile a litre of salt solution was infused and more camphor injections were given. The patient practically never rallied and died 40 hours after the

operation. At the autopsy no cause for bleeding could be found other than the above-mentioned lacerated vein. Microscopically the wall of this vein was quite normal, containing its usual amount of elastic tissue.

Only two parallel cases can be found in literature, one by Rokitansky, the other by Gusserow and Zweifel. No details of the former case are mentioned, but in the latter the fatal bleeding occurred in a girl of 27, who had just aborted at the fourth month of pregnancy. The bleeding in this case came from a fibroid in the posterior uterine wall.

No cause whatever could be found which would explain the bursting of the vein in the present case.

THOS. G. STEVENS.

Hydatid in the Female Pelvis, with Notes of a Case of Primary Hydatid Disease of the Bladder.

STANDAGE. *Indian Medical Gazette*, May, 1905. Vol. xl., No. 5.

HYDATIDS in the female pelvis are sufficiently rare to deserve notice. In this communication a very extensive formation of these cysts was found in the abdomen and pelvis, and as a shrunken, thick membrane was found over the bladder and under its peritoneum, this was thought to be the primary cyst and the others to be the daughter cysts, which but for adhesions were free in the peritoneal cavity.

The patient was a woman of 20, who complained of pain and increasing abdominal enlargement. A smooth, tense tumour was felt rising as high as the umbilicus. On examination *per vaginam* a hard, tense tumour was found filling Douglas' pouch, and evidently connected with the uterus, which could not be differentiated from the rest of the mass. The case was thought to be one of double pyosalpinx, though the possibility of hydatid disease was also considered. At the operation the cysts were found to be in connection with omentum, with the appendix and small intestine, with the back of both broad ligaments, and in the case of the one in the pouch of Douglas to be adherent to the rectum and the back of the uterus. Eight cysts in all were removed; the uterine appendages were unaffected except by adhesion. A thickened wrinkled membrane enclosing a small cavity was removed from under the peritoneum covering the bladder. The patient made a good recovery.

The writer discusses shortly other recorded cases of hydatids in the female pelvis.

JOHN S. FAIRBAIRN.

Two Cases of Kraurosis Vulvæ.

JAYLE (F.) and BENDER (X.). *Bulletin et Mém. de la Soc. Anat. de Paris*, July, 1905.

THE writers record two cases of kraurosis vulvæ, both of which presented the typical clinical characters of this lesion. They made a careful histological study of excised portions in each case. The lesion present was found to be a well-marked sclerosis; the sub-epithelial tissues being dense and homogeneous and containing scattered foci of embryonic cells. The vessels were few and reduced in calibre. The elastic tissue, both of the blood-vessels and the stroma, was hypertrophied. These histological findings are compared with those of leucoplakia of the vulva. The essential characters of the latter, namely, hyperkeratosis, hyperacanthosis and eleidinosis are entirely wanting in kraurosis. The differentiation between these conditions can be made from histological examination alone. Some writers consider that kraurosis represents the ultimate stage in the evolution of leucoplakia of the vulva, but this hypothesis is not borne out by these observations.

FRANK E. TAYLOR.

Hygienic and Intellectual Education of Girls.

CARMICHAEL (JAMES). *The Scottish Med. and Surg. Journal*, November, 1905. Vol. xvii., No. 5.

THE tendency in the past and largely still at the present time is to educate girls very much on the same lines as boys in regard to the scope and character of their school work. The large majority of girls have only one occupation in after life, that of becoming help-meets of man and the future mothers of our race, yet in educational matters the practice largely obtains of educating them in secondary schools very much on the same lines as boys, ignoring altogether the sexual difference. Dr. Carmichael thinks that this is most detrimental to the health of girls, and that the energy expended upon the higher education renders them less able to bear the strain of duty in after life, more especially with reference to the function of maternity.

The education of girls should include home as well as school training, and, to ensure this, evening lectures or classes should be instituted for mothers in connection with Board and other schools. Hygienic training of girls should be considered of the first importance; intellectual training should be regarded as of secondary importance, and should be strictly regulated in accordance with the age and physical health of the pupil. The majority of girls should not have more than three or four hours intellectual work each day for the whole period of school life. Those girls who aspire to the higher education should not commence such studies before the age of sixteen. All girls should be instructed during the last year of their school curriculum in physiology and hygiene, in order that when they become wives and mothers they may have an intelligent appreciation of the principles necessary for the rearing of healthy children.

COMYNS BERKELEY.

REPORTS OF SOCIETIES.

OBSTETRICAL SOCIETY OF LONDON.

Wednesday, January 3rd, 1906, Dr. W. R. Dakin, M.D., F.R.C.P., *President, in the Chair.*

Fibro-myoma of the Uterus Undergoing Sarcomatous Change.

Drs W. S. A. Griffith and Herbert Williamson read a paper on this subject, which appears as an original article on p. 84 of this number of the Journal.

Dr. Hamilton Bell mentioned that the case of fibro-myoma undergoing sarcomatous change, which had been shown to the Society by Dr. Tate two months ago, had been considered by the Pathology Committee, and that they had declared themselves unable to pronounce definitely in favour of the sarcomatous change. On the other hand, the pathological department of St. Thomas's Hospital entertained no doubt upon the point.

Dr. Herbert Spencer said that he believed that sarcoma of the uterus was commoner than was generally supposed, and that it was often difficult to distinguish from fibroid. He considered the presence of large or giant cells of considerable value in distinguishing between sarcoma and an inflamed fibroid. He mentioned two cases which at the time of operation were regarded as simple fibroids, but which on subsequent examination, and on the development of secondary growths, proved to be sarcomatous.

Dr. Williamson, in reply, said that he agreed that when the presence of giant cells could be demonstrated, the tumour was probably of a malignant nature.

Pyelonephritis of Pregnancy.

Dr. W. A. Milligan read a short communication on this subject, which appears on p. 95.

Dr. R. Drummond Maxwell recorded the case of a woman of 25, who, when four months pregnant with her first child, was found to be passing pus in the urine. She was placed on milk diet, and the symptoms subsided so that she was allowed to return home; but in the 26th week of her pregnancy she was received back into hospital with a return of the same symptoms, and delivery was induced; without, however, effecting much improvement. A fluctuating renal swelling was then detected in the left loin. A large pyonephrotic abscess was discovered, from which a considerable amount of friable calculus was removed.

Adenomatous Polypus of the Cervix.

Dr. F. E. Taylor showed microscopic sections of a polypus springing from the cervix uteri. The polypus was equal in size to a pigeon's egg, and

had been removed from a woman of 53 on account of hæmorrhage of five years' duration. Microscopically it is seen to consist of masses of glandular tissue surrounded by richly cytogenic lymphadenoid connective tissue.

Dr. AMAND ROUTH said that he had seen several of such polypi growing from high up in the cervical canal, where muscular and glandular tissues intermingle.

Dr. HERBERT R. SPENCER said that the adeniferous fibroid polypi were not at all uncommon, and he thought it a mistake to call them adenomata.

UTERINE FIBROIDS IN ADVANCED AGE.

Dr. W. S. A. GRIFFITH related two cases of calcified fibroids which it had become necessary to remove on account of pressure symptoms: one, in a patient of 73, and the other in a patient aged 69. In each case complete relief followed operation.

TUBAL MOLE ASSOCIATED WITH SARCOMA OF OVARY.

Dr. GALABIN showed the left tube containing a mole and corresponding ovary (which was sarcomatous) removed together with the appendix from a woman of 46, who had had five children. The left ovary was nearly solid, but recent section showed a few very small cysts. He thought it probable that transperitoneal migration of the ovum had occurred.

Dr. FAIRBAIRN said that he considered that the specimen should be classed as a fibroma, and not as a sarcoma, of the ovary. He thought that there was ovum-bearing tissue on the outside of the tumour and, consequently, that there was no need to assume that transperitoneal migration of the ovum had taken place.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

Meeting at the Manchester University, December 15th, 1905, Dr. LLOYD ROBERTS, *President, in the Chair.*

ACTIVE GROWTH IN A FIBRO-MYOMA TWENTY YEARS AFTER THE MENOPAUSE.

Dr. WALTER (Manchester) showed a uterus removed from a patient aged 60, who reached the menopause at the age of 40. For seven years she had been aware of a lump in the abdomen, which had grown rapidly during the last four months, and had caused pain and pressure symptoms. After opening the abdomen a large intra-mural fibroid, which extended into the right broad ligament, was enucleated, and the uterus was then removed. Recovery was normal. The uterus was equal in size to a fœtal head, the enlargement being due to numerous small fibromata; at the back of the uterus was a large cavity, from which the fibroid had been shelled out. The tumour measured 5 inches long by 5 inches wide, and 4 inches thick.

The chief interest in this case is the very long time that occurred after the menopause before the tumour perceptibly increased in size.

KRAUROSIS VULVÆ.

Mr. RODOCANACHI described a case of this nature. The patient complained of a small tender lump of eight weeks duration in the anterior portion of the external genitals. The lump was found to consist of the

clitoris and its prepuce; there was some swelling of the anterior parts of the labia minora. The skin was in parts stained a deep brown colour whilst elsewhere it was smooth and white. There was an eczematous condition also. The diagnosis appeared to lie between hard chancre and a pre-cancerous state. Mercurial treatment was tried without benefit, and the affected parts were therefore freely excised. Sections showed those changes in the skin which are characteristic of kraurosis vulvæ. The subcutaneous tissue was full of inflammatory exudate, small round celled infiltration being very marked. There was nothing of an epitheliomatous nature. The atrophic changes usually apparent to the naked eye were in this case masked by swelling of the clitoris, prepuce, labia minora, and labia majora. The swelling was, however, secondary, and inflammatory in nature.

Uterine Dilators.

Dr. Walls and Dr. Clifford (Manchester) showed a set of metal uterine dilators they had had made to their own design. The dilators are English catheter gauge, and the chief point is that the first inch gradually increases in size from that of the last instrument passed to that of the one being used—that is, each begins where the last left off, thus making it easy to pass from one to another in cases where dilatation is difficult with less carefully graduated dilators.

Vaginal Drainage Tubes.

Sir W. J. Sinclair (Manchester) showed examples of his vaginal thimbles made in silver and in vulcanite. He had had these made because glass thimbles were liable to breakage, and also because it was difficult to get the instrument properly constructed in glass.

Pelvic Impaction of Fibro-myomata.

Dr. Fothergill (Manchester) showed four specimens from cases in which he had operated mainly on account of pressure symptoms, together with diagrams and drawings illustrating for teaching purposes the effects of pelvic impaction of fibroids on the patient and also upon the fibroid.

Two of the cases were of special interest being examples of first pregnancies occurring in women aged 44 and 45 respectively, whose uteri contained fibroids of considerable size.

F. H., aged 44. No previous pregnancy. Three months amenorrhœa. Repeated attacks of retention of urine, and intestinal obstruction during last three months. On admission abdominal swelling, size of pregnancy at term. On passing catheter 66 fl. oz. of urine withdrawn. The enormously hypertrophied bladder could be abdominally palpated though empty, and through it a tumour apparently cystic. Pelvis filled with solid tumour; cervix high behind pubes. Incision came down on bladder instead of on peritoneum. Hysterectomy difficult on account of hypertrophied bladder like an empty football, which could not be kept out of the field of operation. Passed blood in urine for a week after operation.

The specimen, as shown, consisted of half of the uterus and fibroid. Part of the cervix had been left in situ, but the cervical canal was seen leading to the uterine cavity, which contained in its decidual and fœtal membranes a small fœtus. The fibro-myoma which occupied the pelvis was in the posterior uterine wall and measured four inches by six. Sections of the other half of the uterus showed normal placental tissue in

continuity with the decidua serotina. Other sections demonstrated a point about which much discussion has occurred—namely, that a marked decidual change occurs during pregnancy in the cervical mucosa, which was here seen to be much hypertrophied, its gland spaces being much enlarged and convoluted. The decidual cells were easily recognised though not large.

Mrs. H., æt. 45, married 9½ years. No previous pregnancy. Five months amenorrhœa. Tumour filling pelvis; cervix not to be felt at all. Cystic swelling in hypogastrium, fluid in breasts. Labour in due course, preparations for operation made, but the tumour was pushed up and living child delivered by turning. Patient did well, but it was not thought safe to leave bruised fibroid, so operation done a week after labour and tumour with fresh adhesions found and some blood clot in pouch of Douglas. Supra-vaginal hysterectomy; normal pulse and temperature throughout, but some thrombosis in veins of left leg.

The specimen consisted, as mounted, of half the uterus and tumour. The large puerperal uterus was seen to be the seat of multiple fibroids, the one which was impacted being in the posterior uterine wall. It had undergone cystic degeneration and its capsule contained only a mass of amorphous greenish-yellow material. The site of recent adhesions remained visible at the lower pole.

Complete Rupture of the Uterus, with subsequent Abdominal Hysterectomy.—Recovery.

Dr. W. K. Walls (Manchester) mentioned a case in which a patient, aged 42, had been in labour some twenty-four hours at 3 p.m. She was having fair pains, but the os uteri was not fully dilated, nor was the presenting vertex engaged in the brim. At 6 o'clock the pains were strong and the head was engaging in the brim. At 8 o'clock the doctor found a marked change, for pains had ceased, and considerable flooding had taken place. The presenting part of the fœtus had receded, and something very like placental tissue was felt. The doctor delivered by version, and was then confronted with the fact that there was a large rupture of the uterus through which the placenta had escaped into the abdominal cavity.

Dr. Walls operated the same evening. The abdomen having been opened by the central incision a large amount of dark blood was cleared away, and then a large rupture of the left posterior part of the uterus was discerned. The rupture extended from about half way up the back of the uterus downwards to the vagina, and through it passed the cord. A hysterectomy was then rapidly performed, a little of the cervix being left in front. The cord was cut across and the upper part taken away through the abdominal wound—the placenta being found high up near the left kidney and spleen. The patient recovered slowly.

Two Vaginal Operations.

Dr. Lloyd-Roberts (Manchester) described a patient, aged 42, whose vagina was occupied by a bulky, rounded, firm mass, almost completely filling the pelvis. It appeared to be projecting from the posterior vaginal vault, for the finger could only just reach the limits of the *cul-de-sac* behind the tumour, whilst in front the vagina was narrow and elongated. The mucous membrane and capsule of the tumour were incised, and the tumour freed.

The mass was a fibroid of the cervix uteri and had extended slightly upwards, but especially downwards into the vagina. The uterus was the seat of other small fibroids. The tumour was about equal in size to a cocoanut, being $5\frac{3}{4}$ inches long, $4\frac{1}{2}$ inches wide, and weighing 20 ozs.

Dr. LLOYD-ROBERTS also showed a uterus removed by vaginal hysterectomy for cancer of the cervix. Cat-gut was used and the clumps of ligatures were drawn down into the vaginal vault, where each was secured by one of the sutures closing the vaginal wound. Convalescence was much favoured by this method, as there was no separation of ligatures by sloughing and the after-treatment was reduced to two packings and a little douching.

PARA-VAGINAL SECTION.

Sir WILLIAM J. SINCLAIR brought up this subject because in his opinion the operation of hysterectomy by means of a para-vaginal incision was not used as frequently as it might be with advantage. He maintained that it was the best possible operation in certain cases of cancer of the uterus, but this was not the chief claim of the operation for the consideration of surgeons. What he wished to indicate was that in a certain class of cases quite independent of cancer, para-vaginal hysterectomy was the only operation which could suitably be performed.

As regards cancer of the uterus, when it was found that vaginal hysterectomy did not give remote results as good as were expected, a wave of pessimism was observed. The reaction from this was expressed in the attempt to secure better results by abdominal hysterectomy with wide dissection of the pelvic tissues. The mortality of this operation was fearful, and its records had not been published. The high-water mark of this operation was reached at Amsterdam in 1899, and at Paris in 1900. Subsequently even the remote results were found to be unsatisfactory, and even Wertheim had ceased to maintain his claims for the operation. In 1901, Schuchardt attempted to extend the percentage of operable cases and to secure remote results better than those of vaginal hysterectomy by the use of the para-vaginal incision. He raised the percentage of operable cases to nearly 60 per cent., and secured 25 per cent. of permanent cures as estimated in the conventional manner. Sir William Sinclair's experience confirmed the value of the para-vaginal incision in those cases of cancer which, though still operable, were too advanced to admit of easy removal through the vaginal orifice. Cases which could not be dealt with by the help of this incision were too advanced to be operated on at all.

To pass on, he would give four examples of that class of cases other than cancer in which the para-vaginal incision was useful and indeed afforded the only suitable means of treatment.

Case I.—A young lady, aged 26, who had never menstruated, had an abdominal section with removal of both ovaries for supposed tuberculosis. Sir W. J. Sinclair saw her suffering from pain, shock, and other indications of hæmorrhage into the peritoneum. The primary condition was found to be atresia of the cervix. The attacks of peritonitis were due to hæmatometra and hæmatosalpinx with escape of blood from the tubes into the peritoneal cavity. The affected organs were safely and easily removed by para-vaginal incision. The corpus uteri was large and distended with retained blood, and could not have been removed through the virgin vagina without the incision. On cutting into the distended organ blood squirted out for a distance of four feet.

Case II.—A patient, aged 55, who had passed the menopause at 44, was thought to have cancer of the uterus. The vagina of this senile virgin was too small to admit of operation without incision. The para-vaginal section rendered the operation quite easy and safe.

Case III.—A patient, aged 40, had been bleeding for a long time and was profoundly anæmic. The uterus was in a state of general fibrosis, and there was a hæmatosalpinx at one side. The vagina was very narrow. The operation was very easy and successful after para-vaginal section.

Case IV.—A patient, aged 31, had never menstruated, but had had intolerable pain every month. She was said to have had both ovaries removed in another hospital. A tumour the size of an orange could be felt on one side of the small uterus. The cervix admitted the sound only one half-inch. The vagina was narrow. After para-vaginal section the uterus was removed with the stump of a tube on one side and a tube, an ovary, and a parovarian cyst on the other. The uterus contained blood under pressure as did the complete tube and the stump on the opposite side. The lower portion of the uterine body was quite solid. A complete cure was the result.

These were cases in which operation by the vagina was much preferable to abdominal section. It was rendered not only possible, but easy, by the para-vaginal incision.

* Sir William Sinclair has kindly promised to publish the full text of his paper, revised and amplified, in a subsequent number of the JOURNAL.

EDINBURGH OBSTETRICAL SOCIETY.

Meeting held Wednesday, December 13th, 1905, J. W. BALLANTYNE, M.D., F.R.C.P.,E., *President, in the Chair.*

A paper on PUDENDAL MYXOMA was read by G. F. BARBOUR SIMPSON, M.D., F.R.C.P.E., F.R.S.E. This appeared in the JOURNAL for December last, p. 393.

A paper on the DELIVERY OF THE HYDROCEPHALIC INFANT BY SPINAL TAPPING—A SECOND CASE, was read by the PRESIDENT (Dr. J. W. Ballantyne). This paper appears in this number of the JOURNAL, p. 106.

UTERINE AND OVARIAN TUMOURS.

Dr. N. T. BREWIS showed several interesting specimens, including an intra-ligamentary fibroid tumour removed along with the pregnant uterus, at the fourth month of gestation; a cervical fibroid removed by myomectomy; an ovarian tumour with a twisted pedicle removed during pregnancy; a solid ovarian tumour; and a uterus extirpated for cancer of the corpus.

Dr. J. HAIG FERGUSON showed a gangrenous cervical fibroid.

HYSTERECTOMY FOR HÆMORRHAGE.

Dr. J. LAMOND LACKIE showed a uterus, rather small in size, which he had removed by vaginal hysterectomy for hæmorrhage; the patient had been previously curetted.

Flattened Fœtus.

The President showed a partially flattened fœtus, not a twin. The mother had had three normal labours and no previous miscarriages. She last menstruated in May (1903), and the fœtus and annexa were expelled in the beginning of December. To judge from its size and the clinical data, the fœtus must have been dead in utero for about twelve weeks. It measured four inches in length, and the flattening was specially marked in the region of the head, where one arm lay in contact with the forehead. There was no twin fœtus to compress it, and no tumour in the pelvis or uterus of the mother.

Raynalde's "Byrthe of Mankynde."

The President showed his copy of Raynalde's *Byrthe of Mankynde*. It was the first or second English work on midwifery, and was undoubtedly the first illustrated one. Little was known of the author, and there was even a question whether he was not also the printer of the volume. Part of the work was a translation of Rhodion's *De Partu Hominis*. His edition was that of 1560; but he showed also the edition of 1552, from the Library of the Royal College of Physicians of Edinburgh, and that of 1598, which Mr. Underhill had kindly lent to him. It was said that the first edition, that of 1540, was dedicated to King Henry VIII's Queen, Katherine Parr; but she only became Queen in 1543. The book was a fine example of the Black Letter.

Velamentous Insertion of the Cord.

The President showed a placenta into which the vessels of the cord passed in the membranes (velamentous insertion). The membranes ruptured and the waters escaped three weeks before the child was born (about a fortnight prematurely). A considerable quantity of water was lost daily during the period. The cord prolapsed (necessitating version), and the cause of the prolapse was doubtless the fact that the insertion of it was situated low down in the uterus (in the lower segment). The child was born alive and survived, although it weighed only 5½ lbs.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF OBSTETRICS.

Meeting held on Friday evening, December 15th, 1905, Dr. R. D. Purefoy, *President, in the Chair.*

Dr. R. C. B. Maunsell showed a uterus removed by Wertheim's method for carcinoma of the cervix.

Dr. Jellett asked if he had found the separation of the ureters, as Wertheim described it, easy? Wertheim said that if the ureter was isolated it sloughed; but what were you going to do if it ran through or on the top of a carcinomatous mass? If this is so, it would seem to be a necessary part of the operation to remove this isolated portion and reinsert the ureter into the bladder. He did not see any difficulty in the rest of the operation.

The President said that in the removal of a cancerous uterus one of the chief things was the safety of the ureters, and this was difficult

to provide for. It was an interesting point that so many glands were examined and found to be free from cancer. His own feeling was that the uterus should be removed in every case in which there appeared to be even a slight chance of the patient getting over the operation.

Dr. MAUNSELL, in replying, said that he too thought that the operation should be done if possible, as he believed the suffering was less when a patient died from a secondary growth, as in the liver, than from the primary one. The ureter had to be separated if you were going to extirpate the parametrium, and he would not have the least hesitation in doing it, as he thought there was little danger of sloughing, so long as you did not pinch the ureter in any way. He had not found it easy to carry out Wertheim's procedure—namely, to lay your finger on the ureter and pass your finger between the ureter and the uterine vessels. Otherwise there was nothing very difficult in the operation, but it was rather lengthy.

Dr. HASTINGS TWEEDY showed a retro-peritoneal sarcoma.

Dr. ROWLETTE described the pathology of the tumour.

The PRESIDENT described a somewhat similar case in a girl, aged seventeen. There had been steadily-increasing distension of the abdomen for two years. The urine was loaded with albumen. Operation revealed a tumour weighing 17 or 18 lbs., in the retro-peritoneal tissue in the region of the left kidney, which was free.

Dr. GOULDING asked if there was a mesentery in connection with the tumour, as it was hard to conceive that the vessels underneath would not otherwise be pressed on.

Dr. TWEEDY, in replying, said that the tumour was absolutely fixed to the spine, and he had been surprised that there was no evidence of pressure on the vessels. This class of tumour could not be diagnosed before the abdomen was opened, and once this was done the surgeon should always complete his operation.

SOME POINTS OF INTEREST IN A SERIES OF TWO HUNDRED AND ELEVEN MAJOR OPERATIONS.

Dr. HASTINGS TWEEDY read a paper dealing with some points of interest in a series of two hundred and eleven major operations performed by him in the Rotunda Hospital, which appears as an original article on p. 73 of this number of the *Journal*.

Dr. JELLETT congratulated Dr. Tweedy, and said he agreed with him in his views on theatre expenditure. He also approved of having the windows open during operations. He thought the sterilizing apparatus should be removed to some distance from the theatre, as the air could, at present, be contaminated by it. He was inclined to think that face bags were not really necessary if the operator took proper care of his teeth. Discussing the technique of operating in cases of sterility, especially when caused by closure of the ostia of the tubes, he asked Dr. Tweedy if he had any reason to think that in a case where the tubal ostium had been glued down to the intestines there was any chance of making it patent again. He himself thought the chance small, and he thought the time might be better employed in removing the fimbriated extremities of the tubes where adhesions were most likely to form. He was much surprised to hear that Dr. Tweedy washed out the abdomen in every case, and asked what his views were on the subject of drainage.

Dr. KIDD asked what method of suturing was used in the cases of ventral hernia. He himself had used the three layer principle with good

results. In the case of a sloughing myoma, which was removed by morcellement, and which ended fatally, would it not have been better to have removed the entire organ? He thought that many cases of sterility were due to the condition of the male. He approved of wearing a mask, as a certain amount of sputum was kept out of the field of operation by this means.

Dr. HORNE agreed that the enormous expenditure incurred in making theatres was to be deprecated. He appreciated the strict asepsis of Dr. Tweedy, and suggested that the nurses also should wear masks. The fact of so many stitch abscesses having occurred showed that no matter what care was taken accidents would happen. He believed that cases of cancer frequently came for treatment when too late, owing to the fact that pain was a late symptom in the disease.

The PRESIDENT said he had not made the use of rubber gloves a general practice. Many operators stated that their successes were not materially increased by their use, and the difficulty of manipulation was certainly increased. He asked what Dr. Tweedy considered the indications for operation in cases of recurring displacements. Many of these cases were attended with symptoms. He utterly disbelieved in vaginal fixation, and thought that after Alexander's operation the ligaments frequently stretched again. He thought there was likely to be trouble after these fixation operations if the woman became pregnant, and supposing the ligaments were strong enough to hold.

Dr. HASTINGS TWEEDY, in reply, said that he had enumerated all his bad cases. Those that remained recovered without causing anxiety. They neither suffered from excessive thirst, vomiting, flatulent distension, nor obstinate constipation. This he attributed in some part to filling the abdomen with saline solution. The patients would probably have recovered without the saline infusion, but he felt convinced that their convalescence would have been less uneventful. His series includes 100 consecutive abdominal sections without a death, but this is not a satisfactory record, so long as the majority of cancer cases seen are not submitted to operation. The submucous myoma removed by morcellation protruded through the vulva as a sloughing mass, and it was quite out of the question to suggest its removal by abdominal section.

REVIEWS OF RECENT BOOKS.

DIE KRANKHEITEN DES BECKENBINDGEWEBES (Diseases of the Pelvic Connective Tissue), unter Mitwirkung von J. A. Amann, Junr., München; O. Busse, Posen; and Ph. Jung, Greifswald. Herausgegeben von A. Martin, Greifswald. Berlin: S. Karger, 1906.

Ten years ago a valuable treatise, *Die Krankheiten der Eileiter*, was added to medical literature. Its merits are well known, and it will be remembered mainly for two features—the appearance of a new term, "sactosalpinx," and the inclusion within its pages of Sänger and Barth's tables of cases of primary papilloma and carcinoma of the Fallopian tube. *Die Krankheiten der Eierstöcke und Nebeneierstöcke* appeared in 1899, the most complete text-book on diseases of the ovaries extant, chiefly celebrated for the thoroughness with which the question of sarcoma and carcinoma was discussed in the chapters on tumours of the ovary, and for the publication in a condensed form of Kossmann's theories on the development of broad ligament cysts and papilloma. Professor August Martin, the worthy and able editor of these two treatises has now concluded his series, which he groups together under the common title, *Handbuch der Krankheiten der weiblichen Adnexorgane*. This last instalment, in which the excellence of its two predecessors is fully maintained, is devoted, we were about to write, to diseases of the connective tissue of the pelvis, but on the title page the words "und des Beckenbauchfells" (and of the pelvic peritoneum) are added modestly in smaller type. This is significant, as the days are past when pelvic peritonitis was spoken of as though it were a primary disease; but our knowledge of inflammatory affections of the appendages has taught us that local inflammation of the peritoneum is manifestly a pure complication. The association, however, of these two terms, "pelvic connective tissue" and "pelvic peritoneum," must infallibly put us in mind of certain old acquaintances, such as the too nicely balanced and somewhat confusing expressions, "perimetritis" and "parametritis," savouring too much of mediæval mystification, like "Balin and Balan," and those blessed words, "hæmatoma and hæmatocele," so dear to gentlemen who discuss the pathology of their own cases of extra-uterine pregnancy at meetings of medical societies. We look forward to the views of the authors of this treatise on the conditions expressed by the above familiar, almost harmonious, names, and of necessity this volume is largely made up of chapters on local inflammations and hæmorrhages.

Turning to details, we must first express our sympathy with the editor for the loss of his distinguished collaborator, Professor Sänger, who contributed important chapters on ovarian dermoids and new growths of the Fallopian tube to the first and second parts of the "Handbuch." Dr. Jung's introductory chapter on the anatomy and physiology of the pelvic connective tissue will repay careful study. The

illustrations are mostly after Freund, Veit, and Tandler and Halban; the coloured microscopic plates illustrating the innervation of the cervix are of more than artistic value. The pathological or main portion of the text practically begins with an excellent chapter by Professor Martin himself, on *Hæmatoma extra-peritoneale periuterinum*. The references at the head of this chapter are enough to make the most industrious young pathologist tremble at their copiousness, indeed we may say the same of the other tables further on, not excepting the pageful of names of papers on tumours of the round ligament alone. Thanks are due to the editor for the indefatigable labour he has spent in collecting references of importance, but we eagerly seek his own experience. We are, therefore, struck by the following remarks: "Great importance has been attached, up to the present time, to the formation of a hæmatoma in association with the intra-ligamentary development of tubal pregnancy. It has been, relatively speaking, diagnosed very frequently. In about 300 cases of extra-uterine pregnancy verified by examination during an operation or at a necropsy, *I have not observed one single case of typical extra-peritoneal hæmatoma*." These words of a high authority will not be forgotten, and they are followed up by a criticism of a case of hæmatoma, compared with a clear instance of hæmatocele, reported by an English writer at a meeting of the Obstetrical Society of London in 1904. Professor Martin gives reasons for believing that the "hæmatoma" was intra-peritoneal, that is to say, not a hæmatoma at all, but a hæmatocele. His arguments, though weighty, are not conclusive, for we must bear in mind that Taylor, of Birmingham, admits the existence of hæmatoma associated with tubal gestation. All must agree, however, with Professor Martin that compared with hæmatocele it is quite exceptional.

The classical words "parametritis" and "perimetritis," introduced by Virchow and sanctioned by Matthews Duncan (notwithstanding objections already indicated), are retained. We are gratified to find that the labours of the latter are not forgotten. Martin himself discusses the ætiology of parametritis, dwelling on certain well-attested non-puerperal cases reported by Cullingworth and others; but he notes that Le Bec's and Cramer's must be rejected, being really instances of suppurating clots. The paragraphs on post-operative and gonorrhœal parametritis will be read with interest, and we need hardly say that the common puerperal type is treated at great length.

Thirty-four pages are allowed to hæmatocele, and four more to the abundant recent literature on that important topic. Dr. Busse has compiled an instructive chapter on its pathological anatomy. He admits that in the large majority of cases the hæmatocele is associated with extra-uterine pregnancy. In respect to more exceptional causes of this condition, Martin states that he has observed large hæmatoceles due to rupture of ovarian follicles. They seem to be usually associated with other well-known pelvic diseases, such as uterine fibroids, tubo-ovarian cysts and traumatic conditions. A true "apoplexy" of a normal ovary, with the blood running freely into Douglas's pouch, seems to be unknown. Hæmorrhage from the tube may be the source of the hæmatocele, but Martin denies that an authentic case of tubal menstruation has ever been observed. Martin is not inclined to admit the "para-tubal hæmatocele" and "hæmodynamocele" of certain British authorities as distinct varieties of hæmatocele associated with tubal gestation.

Dr. Busse favours the reader with some important observations on the pathology of blood effusions into the peritoneum. The blood, he points

out, will be absorbed in all cases where the loss is not sufficient to kill, provided that it be fluid and that the peritoneum be healthy and therefore capable of absorbing it. In those now familiar hæmatoceles associated with early interruption of tubal pregnancy both these conditions are absent. The blood issuing from the ostium of the Fallopian tube where a tubal mole lies in the sac, or the blood escaping into the peritoneal cavity during tubal abortion is partly coagulum and not usually very recent coagulum. The peritoneum is never in a perfectly normal condition. Roughening of its free surface is not the sole or essential change; Busse has detected great vascularity of the subserous tissue of Douglas's pouch in several cases of very early tubal gestation, evidently of older standing than the concomitant but purely secondary hæmatocele. The coagulum constituting the hæmatocele of tubal pregnancy is more than common blood clot; Busse describes the changes which it undergoes when it becomes organized on the surface of Douglas's pouch or on omentum.

Professor Martin himself finds, after an experience of over 250 operation cases for early tubal pregnancy, that tubal mole without hæmatocele is the condition observed in about half the entire number. In much more than a quarter of the remaining half, where hæmatocele is invariably present, the blood arises from a tubal abortion, the ovum being expelled through the ostium into the peritoneal cavity. True rupture of the sac, where the hæmorrhage is necessarily grave, is quite the exception. As a corollary Martin admits that in a large number of cases of tubal sacs where pregnancy is checked at an early stage spontaneous recovery ensues, and hence many hæmatoceles become absorbed, as is proved by the frequent detection of traces of altered clot in the pelvic peritoneum in the bodies of old subjects. But though Martin agrees with Veit, Thorn, and Fehling's observations proving spontaneous recovery in cases of hæmatocele, he implies that we must not rely upon such experience as a guide too much, for recurrence of dangerous hæmorrhage is always possible, and, on the other hand, removal of a tubal sac in early pregnancy is an operation attended with only a slight mortality. His opinions are in accord with those of many British authorities.

In the chapter on peritonitis and perimetritis, written by Dr. Busse, that writer returns to the question already considered by him in the account of his researches into the nature of hæmatocele, namely, the impairment of the absorbing power of the peritoneum. This lesion is often observed in cases of large ovarian cysts, or rather was often observed in days when tumours of that class were allowed to grow to a great size. Cicatricial tissue develops over the wide area of peritoneum irritated by contact with the big new growth. When the tumour is removed blood oozing from the pedicle is not absorbed. Dr. Busse quotes A. F. Neumann's observation on a case where a hæmatocele developed under those conditions. These statements should be borne in mind, for unabsorbed blood may form a favourable medium for the cultivation of septic germs introduced from without; in other words, septic peritonitis after an ovariotomy complicated by adhesions is not necessarily due to infection from damaged intestine or from the contents of the cyst. Dr. Busse's chapter on perimetritis includes some interesting paragraphs on infection from gonorrhœa and on tuberculous peritonitis. Dr. Busse, whilst dwelling on the bad influence of peritoneal inflammation and absorption through surfaces of peritoneum still free, does not, of course, minimise the gravity of intestinal adhesions. He shows, as the result of researches into about a dozen cases of death after ovariotomy in

the Greifswald clinic, that bowel is often damaged, and not only by separation of a large area of peritoneal adhesions. Fibrinous bands tend to drag on their intestinal attachment, which may be very narrow, pulling out a minute funnel-like process of bowel. This process involves all the coats, in consequence if the band be separated close to the gut the mucous membrane may be wounded. The perforation is very easily overlooked during an operation, but is quite sufficient to allow of fatal bacillus coli infection. Even at the necropsy it is not always easy to detect a perforation of this type.

It is no longer the custom amongst compilers of text-books on gynæcology to pass lightly over pelvic tumours originating beyond the limits of the uterus, tubes, and ovaries. In this work over eighty of its final pages are devoted to an almost encyclopædic review of new growths of the pelvic connective tissue by Dr. J. A. Amann. This review begins with a good disquisition on fibroma and fibromyoma independent of uterine fibroid disease, the author adding five cases to the long series of tumours of this type reported or collected by previous writers. Stroheker's valuable monograph is not overlooked, it is the most complete special work on the subject ever published. Turning to another class of pelvic tumour about which a great deal has been written of late years, fibroids of the round ligament, we find that the subject is treated at some length by Dr. Amann, who introduces two instructive plates, one representing a fibromyoma with its relation to the round ligament whence it springs clearly demonstrated, the other displaying the lymphangiectases seen on the cut surface of a round ligament myoma undergoing myxomatous degeneration. In his recapitulation of cases of fibroids of the intra-abdominal portion of the round ligament the author has overlooked Dr. Herbert Spencer's important communication on the subject with tables, but as it appeared in the forty-sixth volume of the *Transactions of the Obstetrical Society of London*, which was not published in full until last March, it is possible that Dr. Amann's article was completed before the British writer's paper could come under his notice. Tumours of the ovarian ligament are discussed in a few paragraphs; Briggs's cases have been overlooked. Dr. Amann reports a case of a new growth of this kind associated with multiple uterine fibroids from which it was quite distinct; Doran and Lockyer have observed instances of the same combination of fibroids of the ovarian ligament and uterus, reported in the former writer's Harveian Lectures which appeared in the *Lancet* early in 1903; these cases also have escaped Dr. Amann's vigilance. The review of sarcoma of the pelvic connective tissue is very complete and is adorned with three good illustrations, a few isolated cases published outside the German and Austrian Empires have been overlooked; but Dr. Amann has satisfactorily performed a task involving great labour, and his sketch of new growths of the pelvic connective tissue will be of invaluable service to the gynæcologist and pathologist for many years to come. Space forbids us to dwell on his observations on non-ovarian dermoids, echinococci, and adrenal elements in the same region.

Professor Martin and his collaborators may be congratulated on this eminently standard work, which is based on their own wide experience, blended with a fair and judicious consideration of the labours of others.

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